DOCUMENT RESUME

ED 279 611 SP 028 044

AUTHOR Puurula, Arja
TITLE Study Orientations as Indicators of Ideologies. A Study of Five Student Teacher Groups. Research Report 41.
INSTITUTION Helsinki Univ., (Finland). Dept. of Teacher Education.
REPORT NO ISBN-951-45-3899-4
PUB DATE 86
NOTE 209p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC09 Plus Postage.
DESCRIPTORS Foreign Countries; Higher Education; Personality Assessment; *Personality Traits; Preservice Teacher Education; *Psychological Patterns; *Student Characteristics; *Student Teachers; *Study Habits
IDENTIFIERS *Finland

ABSTRACT

The official recommendations of teacher education in Finland stress the personality growth of student teachers towards an active, highly educated, socially oriented, and humanistic personality. This is a study of three kinds of prospective teachers: nursery school teachers, elementary teachers, and subject teachers. The student teachers of the University of Helsinki and the Institute of Nursery School Teachers (N=721) answered a questionnaire on study orientations, personality traits, career choice motives, and study experiences. A step-wise strategy of analysing the data was used, first describing the differences between the groups, then investigating the relationshps between the domains and the structure of study orientations, and, finally, explaining the study experiences within the domains. The students of nursery and elementary programs were characterized as balanced, extrovert and reform-oriented, and the prospective instructors in home-economics and textile handicafts as conventional and anxious. Subject student teachers were mainly achieving-oriented introverts with weak egos. A close relationship between study orientations and personality traits was found to exist. Pragmatism and achieving were connected with a sense of duty, and reforming and internality with extraversion and originality. Also, career choice motives had the same kind of tendency to correlate with study orientation and personality traits. (Author/JD)

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RESEARCH REPORT 41

Department of Teacher Education
University of Helsinki

Arja Puurula

STUDY ORIENTATIONS AS INDICATORS OF IDEOLOGIES

A study of five student teacher groups

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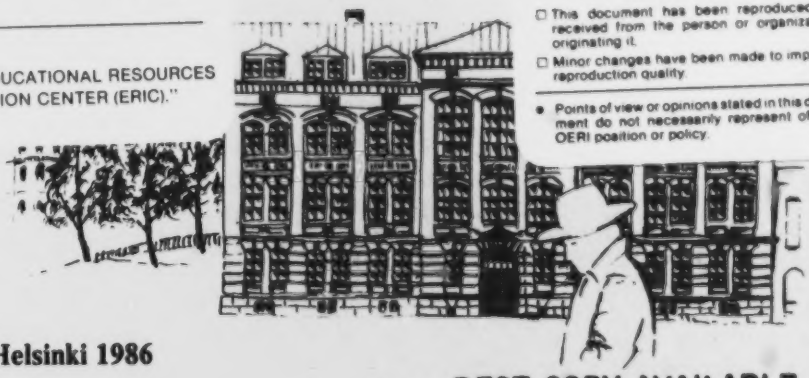

Helsinki 1986

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RESEARCH REPORT 41

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Arja Puurula

STUDY ORIENTATIONS AS INDICATORS OF IDEOLOGIES

A study of five student teacher groups

Academic dissertation to be publicly discussed, by due permission of the Faculty of Education in the University of Helsinki, in Auditorium 1 of the Department of Teacher Education, on March 14, 1986 at 12 o'clock a.m.

Helsinki 1986

ISBN 951-45-3899-4
ISSN 0359-4203
Helsinki 1986
Yliopistopaino

ABSTRACT

Arja Puurula

Study orientations as indicators of ideologies: A study of five student teacher groups. The Department of Education, University of Helsinki. 1986. 204 p.

The official recommendations of teacher education in Finland stress the personality growth of a student teacher towards an active, highly educated, socially oriented and humanistic personality. This ethos was studied with a theoretical framework consisting of an extension of recent theories concerning the structure of study orientations by Biggs and Entwistle. Study orientations were defined as indicators of broad, "shared" systems of thought (ideology), and four dimensions were used: Pragmatism, Internality, Achieving and Reforming.

The student teachers of the University of Helsinki and the Institute of Nursery School Teachers answered a questionnaire on study orientations, personality traits, career choice motives and study experiences. A total of 721 students (81.5% of population) from five different programmes of teacher education answered the questionnaire. A step-wise strategy of analysing the data was used: first describing the differences between the groups, then investigating with several multivariate techniques the relationships between the domains, and the structure of study orientations, and, finally, explaining the study experiences with the domains.

The students of nursery and elementary programmes were characterized as balanced, extravert and reform-oriented, and the prospective instructors in home-economics and textile

handicrafts as conventional and anxious. Subject teacher students were mainly achieving-oriented introverts with weak egos. Differences between the groups were minor. Sex and study-years did not cause any notable variation.

A close relationship between study orientations and personality traits was found to exist. Pragmatism and achieving were connected with a sense of duty, and reforming and internality with extraversion and originality. Also career choice motives had the same kind of tendency to correlate with study orientations and personality traits.

The second-order factor-analysis revealed that the main dimensions of the study orientations were: 1) Pragmatism plus Achieving and 2) Reforming plus Internality. A third main dimension, Stress, was found to exist in the data. Especially the students of the home economics and textile handicrafts programmes suffered from stress.

The satisfaction with studies was explained by a combination of variables which were considered to be questionable in relation to the official aims of teacher education.

Preface

When writing this report I have had in mind a certain ideal of presenting educational research. I believe in the advantages of the accumulation of research findings; therefore, I have gathered the already existing papers on Finnish teacher education (written mainly in Finnish) in order to present the major results of this research tradition in English. On the basis of this knowledge, I shall study the differences between the study orientations of five groups of student teachers. The current concept of 'study orientation' is applied to the old research tradition and to the ethos of Finnish teacher education.

The project started in 1982, and the report was mainly written during the winter 1984-1985. It was finished in March 1985. Since then, some minor alterations were made during October 1985 concerning the psychological aspect of the study orientations. Some references were also updated.

I am especially grateful to Professor Pertti Kansanen for his interest and encouragement during these years. He has acted as a tutor of this study and arranged ideal circumstances for research work. Associate Professor Kari Uusikylä has greatly helped me to enlarge my methodological views and offered me valuable criticism and support. To Docent, Ph. D. Maija-Liisa Rauste-von Wright, I am indebted for her thorough and stimulating comments on the manuscript.

Professor Anna-Liisa Leino has guided me to the realms of learning styles and study orientations. She also gave her critical comments on the manuscript. Associate Professor Erkki Komulainen kindly offered his help with some statistical problems. Associate Professor Juhani Hytönen read the manuscript and discussed it with me. To all the above persons I wish to express my gratitude.

I am grateful for the help of several other persons, too. Associate Professor Paul Hellgren has made many helpful suggestions to the ideas of the project. Ms Ritva Järvinen, B.A., has kindly assisted with the translations from German. Mrs Birgitta Ylisela provided me with a warm atmosphere of working in her office-room and with the necessary technical equipments.

The research has been supported by The Finnish Cultural Foundation and The Foundation of Kordelin. I wish to express my gratitude to both foundations for their financial help.

Finally, my warmest thanks go to my family for their understanding and care. Without the support of my parents, Mr Toivo Pyhtilä and Mrs Maija-Liisa Pyhtilä, this project would have beem too much for a mother of four sons.

Helsinki 18.2.1986

Arja Puurula

To Markku, Jukka, Risto, Timo and Antti

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I TOWARDS A THEORETICAL INSIGHT OF STUDY ORIENTATIONS OF STUDENT TEACHERS

1. Introduction

1.1. Purposes of the study

This is a study of three kinds of prospective teachers: nursery school teachers, elementary (or class) teachers and subject teachers. The division between the staff of pre-schooling, primary education and secondary education is considered to be artificial if we emphasise the educational aspect of the work. 'Care' contra 'education' or 'teaching' contra 'educating' may be relevant contradistinctions to a certain extent, especially in connection with the cognitive contents or material of teaching, but the process of educating is here considered to contain more than that.

In this report, teaching is defined as an interpersonal, goal-oriented activity. Teaching is a process of interaction between two or more persons. Value decisions are integral to education, it is impossible to educate without having some value commitment. In all fields of education, the fundamental ideal is to form students into self-dependent personalities, capable of making their own judgements, asking for reasons and using critical thinking. In the present situation of mankind, education is inevitably normative. (Soltis 1968, 15; Scheffler 1971, 61; Klauer 1985, 5; Floden 1985, 22; Skinnari 1980, 49; Lahdes 1983b)

This study bases on the assumption that institutionalized education has a common core in spite of the differences in the contents of teaching, differences in the education of teachers or the age of the pupils they are qualified to

teach. This common core might be called the educational ideology of the school system and, formal or informal, by its very essence it is created by the culture of the society.

Furthermore, it is supposed that the general culture of our student teacher society is rather homogeneous, leading to a certain similarity in basic views. The educational ideology or ideologies of the society is/are reflected in individual ways of acquiring knowledge, and in the values and attitudes that one holds. The focus of this study is to examine the structure of study orientations defined as indicators of ideologies. The study thus tries to amalgamate two trends of educational research: 1) the investigations into the study orientations of students in higher education and 2) the studies on attitudes and values.

The theoretical framework of the empirical part of the study consists of an extension of the so-called Biggs' model of study processes. An effort is made to expand the primarily psychologically-oriented research of the field (=learning styles, study styles, study orientations) towards the common elements found in the sociology of knowledge. An unavoidable conflict exists between the highly empiristic tradition of studying study orientations (the use of variables, dimensions, scales, factor-analysis, reliability estimates and so on) and the more theoretically oriented research on ideology. When writing the report, I have subscribed to "the sociological imagination" (see footnote) and believed that abstracted empiricism must be mastered thoroughly in order to know its limitations and possibilities.

The roots of the quantitative, questionnaire-based measurement of personality, study styles and social attitudes are

common to a certain extent. For example, the research tradition of study styles as represented by Entwistle, Wilson or Biggs has links with the measurement of personality traits (mainly Cattell and Eysenck), and, on the other hand, the measurement of personality traits leads to social attitudes and ideologies. This link is most evident in the method of gathering data, e.g. the use of the same kind of items in questionnaires. The critical examination of the methodology is intended in this study to run parallel with the scrutiny of the study orientations of five groups of student teachers.

Because of the extensiveness of the area under study, two important borderlines are set. The theoretical discussion about the concept of "ideology" is left at a level which is sure to be unsatisfactory to a keen reader of cultural studies (e.g. the papers on ideology by the so-called Birmingham group -see Hall 1978 and 1981). The decision was made because the main task is to study empirically the structure of study orientations (defined as indicators of ideologies). Terminological and research methodological differences plus the somewhat ambivalent situation of the cultural studies might have detracted from the main task.

The second cut-down occurs in the recent research on teacher personality. This area is touched on only on the surface, because the possibility of utilizing this area came too late to have a natural effect on the theoretical framework. And as previously stated, the personality of a student teacher

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"Sociological imagination" is defined by Mills as "the capacity to shift from one perspective to another - from the political to the psychological; from examination of a single family to comparative assessment of the national budgets of the world; from the theological school to the military establishment; from considerations of an oil industry to studies of contemporary poetry." (Mills 1959, 7)

as such is of second-order interest in the study - for the reasons given in the following sections.

1.2. The official aims of teacher education in Finland

Teacher education in our country (see footnote) has been reformed during the 70's to unify the schooling of all comprehensive school teachers, and new aims for teacher education have also been set. A lengthy but informative quotation from Heinonen, R. (1984, 103-104) explains the situation:

"i) The training of teachers has been moved from the former institutes of teacher training to universities. In this way the Basic School teachers' knowledge of the study subjects has been improved. At the same time the difference between the class teachers' and subject teachers' level of knowledge has been narrowed. This corresponds with the effort to make teaching more scientific, as proposed in the Faure Raport.

ii) In practice, this means that both the class teachers and the subject teachers must have passed a higher university examination (Candidate in the Science of Education corresponding approximately to MA)

iii) As the third principle, the Act on the Training of Teachers states the increasing need for pedagogic competence. The teacher needs this in order to guide pupils

---

(Nursery schools are for children of 3 to 6, elementary level of comprehensive school 7-12 and upper level of comprehensive school 13-15. Compulsory education begins at the age of 7 and ends at 15. Nursery school education is financed and governed by the Ministry of Social Affairs and comprehensive school education by the Ministry of Education. The training of all teachers, is however, the responsibility of the Ministry of Education. See appendix 11 on the Finnish system of teacher training.)

through learning difficulties and towards personal maturity." ... "The teacher's pedagogic ability is increased according to the Act, if he or she will *orientate towards* the sociology and psychology of learning. An important change in attitudes concerning the teaching profession should stem from the fact that the teacher's attitude towards his (or her) work would resemble that of a research project. Theory and Praxis, pedagogical studies and studies of school subjects should be more closely united." (see also Anon. 1984, 104-105)

Nursery school teacher education has followed a tradition of its own, separate from comprehensive school teacher education, being more practical, shorter in duration and not leading to an academic degree. We may, however, note some common elements in the training of all three student groups, the ideal personality of a teacher being one of them. All three student groups also receive extended, and to a great extent similar teaching in educational sciences. (Anon 1984, 95)

One of the most important common aims is "the development of the personality of a prospective teacher". The phrase is somewhat ambiguous because the quality of personality is not stated. The ideal features of a teacher must be inferred from the context.

In the memorandum concerning the training of nursery school staff the aims of the training are based on the following determinants: child, culture and society, the act of educating and the student. The general aim is expressed as follows:

> "... to give support to the development of a student's personality and to help her/him to get such knowledge, skills and attitudes that make her/him capable of edu-

cating children as directed by the official aims. S/he must also develop the state of readiness of continuous development". (Anon. 1981, 54).

The training objectives of nursery school teacher education are also specified in an earlier document, where an active, co-operating, socially and globally oriented person is set as an ideal educator (Anon. 1974). The same ideal appears in the committee report on elementary (= class) teacher education, where the first of the five general aims is stated thus:

> "The teacher should be able to analyze the development of society and be aware of the social consequences of his work. He should be able to contribute to the welfare, freedom, security, enjoyment and development of the members of society in accordance with the principles laid down in the United Nations' Universal Declaration of Human Rights." (Anon. 1975)

The statute on the degrees and programs of teacher education in the University of Helsinki (Anon. 1979) state the following objectives for the three programs of teacher education: class teachers, instructors in textile handicrafts and in home economics:

> 1) to make a student know the physical, social and mental development of an individual and know the scientific theories of the process of education and teaching, and know the applications of these theories in practice so that he is capable of enabling a student to develop his personality and to achieve the objectives of school education,
>
> 2) to familiarize a student with the contents of the school subjects,
>
> 3) to give a student the basic knowledge of society, educational history, various schooling systems and

politics, (and a special objective for the students in the program of the home economics teachers: to provide basic knowledge of the family and the home),
4) to give a student a state of readiness for further education in the educational sciences.

The formal aims of subject teachers as educators are more vague: "A student is to be given a general idea of the growth, development and possibilities of schooling of a human being." (Anon. 1985). Both class teachers and subject teachers are supposed to act as educators of children, not only teaching them a specific content but educating them as human beings. The Act on Comprehensive School 1983 states the following principles as guides to the personality development of pupils: balanced, healthy, responsible, self-dependent, creative and peace-oriented personality and member of society - and these aims apply to both groups of teachers, either in the primary or secondary level of the comprehensive school.

The above aims are repeated in a recent report by the Committee on Practice Teaching. According to this report, one of the most central duties of a teacher is to support the development of pupils into balanced, co-operative, responsible and mentally independent beings. On the other hand, a teacher must work together with other teachers, parents and specialists in different fields. All this sets great demands on the personality of a teacher and must be taken into account in the education of prospective teachers, either class teachers or subject teachers, states the memorandum. (Anon. 1983, 9-10)

The aims of nursery school teacher education differ somewhat from the above, but the differences relate mainly to the insufficient number of places in day-care and to the fact

that children are selected on a social and educational basis. In fact, nursery school teachers are not considered to be "real" teachers because the main function of day nurseries is to provide parents with a place to leave their children while they are at work. In 1980 about 25% of 3-to-6 year olds had the opportunity to participate in nursery school instruction. In 1970 the percentage was as low as 7.6% . Compared to other Europian countries, the percentage is rather low. The increase in day-care facilities and in the demand for professional staff took place during the 70's. (van der Eyken 1982, 25)

In summary: The official recommendations for teacher education stress the personality growth of a teacher student. This aim is common to all levels of teacher education, but it seems to be less apparent in the new training of subject teachers. An ideal teacher in Finland is seen as an active, highly educated, socially oriented and humanistic personality.

The separation of teacher education according to the different levels of institutionalised education has historical grounds. Hytönen (1984) points out that pre-school and early comprehensive-school education in Finland should be integrated to ensure continuity. In the Statement on Pre-scool Education in Europe by the Council of Europe (CCC 1979, 224) this aim is expressed thus: "Steps should be taken to remove any barriers between the professional groups responsible for the two sectors of education. They should receive a common basic initial training which includes study of the pre-school and primary years."

The above statement can be extended to upper levels of teacher training, too. The intergration of teacher education demands a search for the common ethical basis of teaching.

1.3. The aims in practice

The definition of education and educating adopted here as a starting point (see Chapter 1.1.), leads to questions about the implications of a set of values, ideologies. The official aims and ethos of teacher education were presented in the previous chapter. How do these aims operate in practice? Kansanen (1976, 1981), Koskenniemi (1984) and Berg (1983) have commented on this aspect. Kansanen uses the concept of purposiveness in order to describe the behavior of a teacher. The basic features of a goal-oriented, purposive teacher are:

1) s/he knows the objectives and current curriculum,
2) s/he knows how to interprete these objectives,
3) s/he acts according to them, s/he has internalized the aims.

These three criteria apply to student teachers, as well. During the training or education they must develop an ethos in accordance with the official one: to become active, highly educated, socially oriented and humanistic personalities, educators.

Kansanen makes a distinction between the concepts "purposefulness" and "purposiveness". The former is present in all teaching situations but the latter only when all three conditions above are fulfilled. A teacher may act in a teaching situation in a nonrational way. He/she can spend the hours in school and instruct the classes without ever having seen or pondered over the formal aims of education. He/she is not at all purposive in his/her work, though undeniably full of purpose: to get the class to learn the whole textbook thoroughly. (Kansanen 1981, 37)

The crucial question here is the problem of the general, mostly ethical and value-bound aims that are not usually to be found in the teaching material. Supposing they are stated in curricula, there still exists the question of whether teachers know them. If a teacher does not know the curriculum or if his/ her own philosophy of life is in conflict with the official one, the aims will not be realized (Kansanen 1981, 36-37). On the other hand, we might argue that the borderline between indoctrination and education becomes too vague if we demand strict obedience to formal aims. This makes the question of the values and value-bound aims of a curriculum the most difficult problem of all.

Koskenniemi (1984) reviews the literature and research findings around the problem of stated aims and those used in classrooms. There seems to be a wide gap between the two, because teachers do not know or approve of the stated aims, and consequently they do not act according to them. Teachers tend to follow their own basic philosophy as far as possible, and they dissociate themselves from the goals stated in curricula, if they do not agree with them, reports M-L. Törnvall (1982). Koskenniemi concludes that every teacher is sure to have an educational philosophy of his own, but points out: "It seems that not only the official aims but also the aims emerging on the basis of personal values and convictions of the teacher play a minor role in the teacher's thinking when he is preparing for teaching." (Koskenniemi 1984, 39)

Berg (1983) reviews the professional code and basic knowledge of teachers in Sweden. He asks, what ideology does society advocate as a guide for teachers and other school staff? The national curriculum contains principles worded in general terms, and embodies a humanist view in Sweden (as in Finland). This view leads to a professional code which can be

expressed in terms of flexibility, co-operation and forward planning in contrast to conservatism, individualism and presentism.

Berg thinks that the basic professional knowledge receives only partial attention in teacher education and in-service training in Sweden. What is missing is the knowledge of school structure including socio-cultural elements. Puurula and Uusikylä (1985) comment on the same tendency in Finnish primary school teacher education. The societal aims as stated in the official recommendations are not seen to be as important as for example subject knowledge or psychology. There are indications of the fact that students underestimate societal aims. To go back to the division between purposeful and purposive behavior: in the value-base of teacher education, the students are not taught to be purposive.

But, teacher educators at all levels have the demanding task to make the students seriously consider their own philosophy of life and education, to develop and become conscious of their own systems of values. The task of a teacher educator is to promote critical inquiry. The way a student studies, the way he likes to acquire and process new information is likely to be transformed through his/her own teaching to new generations. Reproduction and uncritical acceptance of existing knowledge is not enough if we want to educate students to confront the problems of tomorrow. (Zeichner and Teitelbaum 1982; Puurula 1983)

In conclusion, it is argued that every student teacher has a philosophy or ideology of his own, but that the extent to which he/she is conscious of it may vary. The purpose of teacher education is to promote the development of a student's purposive behavior.

1.4. Characteristics of a "good" teacher

The question of the ideal characteristics of a teacher is also relevant, though the main theoretical interest rests on the structure of study orientations of student teachers. The search for "an ideal teacher" has been extensive in educational sciences. Various methods have been used and several summaries of the findings have been reported (e.g. Powell & Beard 1984). The aim of the following review is to check the methods that have been used in studies on teachers and to present some of the main findings in this area.

In Germany, there is a long tradition of studying teacher personality. The studies of Müller-Fohrbrodt show that teachers do not possess specific personality traits or intellectual abilities when compared to other groups, and that there are not to be found any consistent characteristics of "good teachers". She found some differences between the prospective teacher groups: elementary school teacher students being more conservative (perhaps because of the influence of the institute) and having a subjective feeling of being intellectually inferior to other groups (which they actually were not). (Müller-Fohrbrodt 1980, 46-48; see also Dieterich et al. 1983, 49-54)

The recent trends of research on teachers in Germany is summarized by Hinsch et al. (1980, 10) as follows:
1) Earlier the search for the static personality traits of an effective teacher was more common, but nowadays more interest is put on the variable and modifiable ways of behavior, strategy and attitudes.
2) Great emphasis is put on such variables that influence his/her behavior or attitudes.
3) The observation of teacher behavior is not as important

as is the process in the mind of a teacher, the subjective formation of impressions, expectations and preferences.

These trends or shifts in research trends can also be noticed in the American educational tradition. Ryan (1982) traces the development of American research on psychological and behavioral characteristics of teachers, and notes that major systematic research on teacher characteristics began in the U.S. during the 1950's. This early research was nontheoretical and fragmented, but revealed that good teachers possess certain interpersonal skills and positive personality characteristics. During the 1960's the concept of personality was broadened to include investigation of attitudes, interests, values and motivations. Also observation studies on teacher behavior increased, but research findings were generally consistent with the previous findings in the 1950's. According to Ryan, the conceptual framework represented a continuation of the old research tradition.

The next paradigm to emerge was "teacher effectiveness", in the early 1970's, seeking for those behaviors that made some teachers more effective than others in producing student achievement. The foremost summary of these process-product studies is that of Rosenshine and Furst in 1971. They reported that some forms of teacher behavior are consistently positively related with pupil achievement, e.g. enthusiasm, clarity, task-orientation, indirectness, structuring comments, giving the pupil the opportunity to learn criterion material. Both high- and low-inference measures have been used to measure teacher behavior, but unfortunately later investigations have produced inconclusive results.

Alongside of this paradigm Ryan notes alternative attempts, e.g. Kounin in 1970, who examined the relationship between

teacher behavior and classroom management by observing various teaching situations, and used terms like "with-itness", "over-lapping", "smoothness" and "group alerting" to describe an effective teacher.

The teacher-effectiveness orientation continued throughout the 1970's and the major review of the research is that of Medley in 1977. To cite Ryan (1982, 1873): "Medley's review suggested that in order to be a good teacher in different settings, at different levels, and in different regions, one has to possess a wide variety of effective teaching behaviors." Effective teachers have more than one pattern of behaving, and the behavioral approach has overlooked many influential factors (e.g. the influence of "internal variables", such as cognitive ability).

The next line of inquiry is known as ATI (aptitude-treatment-interaction) research. It renewed the emphasis on the teaching situation as an interaction process and led to a rather complicated methodology. Still, the outcome remained the same: "there is no one set of teacher characteristics effective with all students in all teaching situations." (Ryan 1982, 1873)

Ryan notes a new paradigm emerging during the 1970's. This paradigm followed the footsteps of cognitive psychology where notions such as "cognitive complexity", "cognitive style" and "learning style" are used. The activity and non-static nature of a human being had been taken into account. The new kind of theoretical frame of reference when examining teacher characteristics admits both the influence caused by context and the natural change and development of a person.

Ryan concludes with a review of the research on cognitive

styles. Surprisingly, the author goes back to the theory of personality types by Jung, which dates back to the 1920's. According to this theory we have three dimensions, Extroversion-Introversion, Thinking-Feeling and Sensing-Intuition, which give direction to our personal consciousness and to the formation of personality. Research based on this theory has produced results, according to which "students with an eye for detail and an affective orientation toward the world (sensing-feeling) tend to be attracted to elementary education. These people also tend to be extrovert in their dealings with the environment. At the secondary level, on the other hand, an education student, although still people-oriented, would be more likely to have an abstract perceptual focus." (Ryan 1982, 1874)

The theory of Jung has an influence on more modern ways of conceptualising "personality", and it had also attracted researchers on learning styles, especially Kolb (see Chapter 2.2.3. about Heikkilä 1983).

The mainstream has changed from types to traits, and then to more dynamic theories of personality. Difficulties in personality measurement have remained. The characteristics of a "good" teacher depend on the context, and there is no static composition of the most preferable features. Nieminen (1984, 60) points out that teachers can by no means be fitted into a single model of personality, and that recently the concept of "teacher person" is often used instead of personality. However, she concludes that a teacher has a definite function in society to exercise an influence on other people. This foregrounds certain skills and aspects of personality, which justify the concept of "teacher personality". This argumentation differs from the most common ones and relates to the definition of education accepted in this

study.

1.5. Research on the Finnish ideal of a good teacher

The personality of a teacher and the methods of investigating this is thus an extremely problematic issue. In Finland early research on teacher characteristics has been mainly oriented towards philosophy or psychology. German, Scandinavian and British educational papers have enriched our research tradition.

To begin with the work of Haavio (1969; first print 1948), whose textbook on teacher personality was used as course material in teacher training for nearly two decades, he considered the profession of a teacher to be a vocation, almost a mission. Being deeply influenced by Kerschensteiner's Die Seele des Erziehers und das Problem der Lehrerbildung (The soul of a teacher and the problem of teacher-education, first print 1921) he thought that pedagogical vocation, sense of duty, humility, patience and other mainly Christian virtues are essential in the profession of a teacher both on the elementary and secondary level.

Haavio also presents one of the earliest, psychology-based typologies of teacher personalities: the application by Kerschensteiner of the personality typology of Spranger (The Spranger-theory of personality also forms the basis of the Allport-Vernon questionnaire called a Study of Values which has been widely tested empirically during the 1950's). According to this typology we have six types of teachers: religious teachers, aesthetic teachers, social teachers, theoretical teachers, economic teachers and political teachers. An excerpt from the original work clearly reveals

the method of drawing conclusions in early phases of philosophically oriented psychology:

> " Gäbe es in Wirklichkeit reine ausschliessliche Vertreter jedes Seelentypus, so hätte jeder von ihnen sein eigenartiges, oberstes Gesetz in seiner Brust, der theoretische Mensch das Gesetz der Wahrheit, der wirtschaftliche das Gesetz des Nutzens, der soziale Mensch das Gesetz der Liebe, der ästhetische Mensch das Gesetz der Schönheit, der politische Mensch das Gesetz der Macht oder Herrschaft und der religiöse Mensch das der Weltuberwindung oder Erlösung." (Free translation: If there were in real life pure representatives of these types, each of them should have its specific, most prominent trait, the theoretical person Truth, the economic person Profit, the social person Love, the aesthetic person Beauty, the political person Power or domination, and the religious person Salvation.)
> (Kerschensteiner 1927, 25)

Of these value-orientations the social teacher was considered by Kerschensteiner to be most suitable (Kerschensteiner 1927, 46-47). Haavio, on the other hand, thought that every teacher ought to be a combination of all the value-orientations. (Haavio 1969, 99-100)

The ideas that Haavio presents, can be seen as containing something very basic to our culture. Lahdes (1983b) points out that the traits of an ideal teacher have remained the same but the names of the traits have been changed. Prevailing features of a teacher in the Finnish culture have been patience, warmth, fondness of children and of knowledge, reports Nurmi (1979) who has studied our teacher education from 1863 onwards. Kähkönen (1979) studies the renewal period between 1958-1978 and reports that the role of the teacher has changed from a vocation to a profession, and

during the 70's to an ideal of a democratic teacher.

Empirical studies on teacher characteristics started in Finland in the 1950's. The personality of a teacher was studied by Viitamäki (1959) by means of the Rorschach-test to get determinants of teaching ability grade. Heikkinen (1962) published a study of the attitudes of teachers under training and in the first in-service years using the Minnesota Teacher Attitude Inventory (MTAI). This instrument was later used in many Finnish studies on teachers.

Asp et al. (1966 and 1967) published studies on the educational attitudes of young teachers. Major dimensions that they report in the 1966 study are: 1) emphases on subject studies, 2) attitudes towards renewal in the training, 3) teaching as a vocation, 4) teacher-centered/pupil-centered (=tough-minded/ tender-minded) (1966, 28-35). Kyöstiö (1968) studied the role of a teacher and reports that six factors emerge from the answers of school board members, teachers, training college and training school students, and citizenship school pupils: 1) ethical behavior factor (conservatism-radicalism), 2) social contact factor, 3) limitation - freedom of action factor (authoritativeness), 4) strictness - tender-mindedness, 5) external behavior factor, 6) social participation factor. The names of the factors reveal the influence of research on social attitudes.

The methods of the attitude-studies reflect general trends of research in the social sciences of that period: factor-analysis, labelling of dimensions, perhaps some search for explanation, but on the whole, minor emphasis on theory. An exception is the study of Koskenniemi et al. (1965), who investigated young elementary school teachers with an intensive data collection method (see Chapter 2.2.).

The paradigm of teacher effectiveness mentioned by Ryan can be seen in our research on teachers in the work by Renko (1971). He used two observation schedules to assess the personality and behavior of a teacher, and combined the results with the achievement of pupils.

The next paradigm, ATI -research is missing in our research tradition, but instead we have a considerable amount of interaction studies of teaching situations, and theory building related to that. Much in line with the Swedish interaction research, the influence of a teacher is in the background. E.g. Lundgren (1972, 41-43) does not include teacher characteristics as one of the factors determining teaching process and results. However, he stresses the objectives of teaching and uses the expression of a teacher's goals "philosophy" (1972, 133).

In the DPA-project, the traits of a teacher, are, however, included and measured, though not usually given any special attention (Komulainen and Kansanen 1981, 7). Martikainen, however, as one of the researchers of the DPA-project, utilizes the traits of the teacher to describe the whole atmosphere of the six classes under study (Martikainen 1982, 43).

During the 1980's research on teacher characteristics in Finland follows the international pattern: cognitive styles and learning styles are the new concepts in use. Lahdes (1983b, 27-28) draws the following, interesting conclusions: The ideal of a teacher is now seen as more dynamic, more linked to the society and perhaps more atomistic (vs. holistic personality) than before. He points out that the ideals are always connected with the values, and these to the existing cultures and ideologies. Therefore, studies that concentrate on analyzing the links between ideals, values

and ideologies are important. This report represents an effort to investigate these links.

2. Trends of research on Finnish teacher education

The tradition of research on teacher education has concentrated on elementary school teachers. The training of nursery school teachers had not been on an academic level (until the 1970's) and on the other hand the work done in kindergartens has not been valued as an integral part of the whole system of education. The education of subject teachers has been subject-centered and highly academic, and the educational, pedagogical elements of a teaching career have played a minor part. The early 1980's has been the starting point of the research on both nursery school and subject teacher education.

2.1. Studies on Finnish nursery school teacher education

Ojala (1983) started a research project on the life-span and development of nursery school students from the time of selection to futher development in their career. The basic idea of the project has close similarities with the first follow-up study of elementary school teacher students from 1965 (Koskenniemi et al. 1965). The research project spans several years and only the first report containing the background of the study has been published so far. Ojala has made a thorough investigation of the research on nursery school teachers in Finland. We have few studies on the selection of students for training institutes and some sparse information about experiences and attitudes of students.

Seppä (1981; translated from Ojala 1983, 47, original report not printed) studies the personalities of applicants for different academic fields including nursery school teacher students. She notes that social and well-balanced personalities are more common in nursery and primary school teacher education. Impulsiveness, some ability factors (R,V and S), masculine-realism, flexibility, ambivalence and intelligence were typical features of a nursery school teacher student.

Ojala (1977) reports a study on the differences between those applicants that were rejected versus those that were accepted for nursery school teacher education. He uses a wide battery of tests, including e.g. tests of personality (Cattell), values (Allport & Vernon) and self-image (source not stated). The following traits were found to distinguish in the applicants that were accepted for teacher education: sociability, leadership, self-reliance, radicalism, originality, extroversion, talents, comprehensiveness, minor tautness (Ojala 1977, 14-16).

These traits are very similar to those of elementary school teacher students. In Aho (1984) personality traits of elementary and nursery school student teachers were compared according to the Cattell theory. Significant differences were found in the traits of self confidence (nursery school teacher students feeling more inferior), emotional dependency (being more dependent) and dominance (being passive). On the whole, students were similar as to their personality traits.

The values and educational attitudes of the two groups of teacher students (elementary and nursery school) are studied by Rantala (1981). She reports that the differences in valuations and attitudes among students in both institutes are very slight (p. 309). Students in the class teacher line

have more positive attitudes towards religious and aesthetic values. They also prefer religious child guidance behavior and are more favorable to a child's dependence on adults (p.311). The kindergarten teacher students value the basic ideas of Christianity less, but they are also the most heterogenous group in this respect (Rantala 1981, 66-74).

There are some indications of the more distinguished radicalism of nursery school teacher students when compared to class teacher students. Rantala (1981, 122) reports t-tests of three interesting items: attitudes towards the socialist national economy, Marxist ideology and private enterprise. The researcher does not comment on these significant differences, but female students of nursery school teacher education show more radical attitudes.

The above results get partial support from Aho (1984, 60-79), where 40 nursery school students of a small rural institute are used as a comparison group in a follow-up study of the development of a group of elementary school teacher students of the same institute. These students respect political and economic values more than elementary school teacher students. The report, however, lacks information about the means and deviations, or scoring of the scales, so it is impossible to estimate the direction of these differences (e.g. whether they respect conservative or radical economic values).

2.2. Research on Finnish elementary school teacher education

The tradition of the research on elementary teacher education in Finland is long. One of the most extensive project has been conducted by Matti Koskenniemi, who in 1965 pub-

lished a follow-up study of the development of young elementary school teachers. This study covers four problem-areas: 1) The entrance examination- those applicants that were approved versus those that were rejected, 2) development of the students during the training school years (student teaching, the development of educational attitudes, success in studies etc.) 3) first in-service years (placement and first jobs, adjustment to the school environment, satisfaction, the development of educational aims) and 4) trends in later development. A continuation study of the same group of teachers and their development in teaching jobs is reported after a 22-year follow-up. (Koskenniemi 1982)

Among his main findings was that it is possible to make a distinction between successful and unsuccessful teachers. However, it is easier to predict the negative development of teachers: those students that had difficulties in understanding children and were not able to structure and analyze the instructional situations were the most unsuccessful in their later career development. (Koskenniemi et al. 1965, 481-516)

This pioneer work has been followed by studies that can be classified in the problem areas of 1), 2) and 4) above. The problem of "reality-shock" of the first in-service years has not attracted researchers on class-teachers in Finland. (For international investigations of the area see Veenman 1984)

Kansanen (1983a) surveys the research on teacher education in Finland. He points out that the bulk of research concentrates on the problem of selecting students for teacher education. In Finland the profession of a teacher has maintained it is popularity, which is not the case in many other countries (Halmela and Komulainen 1983, 19). The need for reliable ways and explicit measures of selecting students

has given rise to several research projects. Studies of the selection process of class teacher education has resulted in practical applications including modifications of the selection procedure. The main emphasis is put on the teaching episode test in order to get an idea of an applicant's mastery of logical thinking, flexibility and skills in structuring. (Alikoski et al. 1978)

Special attention has been given to the teaching episode test in the studies by Erkki Komulainen (1975a, 1975b, 1976, 1977; see Kansanen 1983a). The main finding has been that although the test is valid and reliable, it is, nevertheless, based on a holistic impression of the personality of an applicant. The students that do well (and thus are selected) in the teaching episode test are mainly extrovert personalities.

Komulainen asks, quite rightly, if we should not pay more attention to the reality of a teachers profession. The work done in schools is not of limited duration, it is far-reaching and demands a peaceful, secure atmosphere, and other characteristics than those of an extrovert personality. Futhermore, Komulainen raises an important question relating to the fact that the final grade for teaching skills is based on the same sort of evaluation as the episode test: "Why should a student know how to teach before he/she has been trained or educated to do that?"

Kansanen (1983a) continues this analysis commenting that the focus of investigation should be on the aims of teaching as they relate to the profession of a teacher- and how these aims can be conveyed to students during the training. This comment is important in this study where five different student teacher groups are compared as to their values and personality, and where the ethos of official recommendations

(Chapter 1.2.) forms one of the cornerstones of the analysis.

The second trend in the research on teacher education is the development of a student during the training. The major studies conducted on the student teachers of the elementary school in Finland are listed in Table 1.

Table 1. Studies on elementary school student teachers in Finland

author	year	theme	research method	N
Heikkinen	1963	attitudes	questionnaire	82
Asp et al	1966	--"--	questionnaire	174
	1967		--"--	299
Ruoppila	1967	attitudes	questionnaire	844
Karvonen	1967	attitudes	--"--	415
Karvonen	1970	religious norms (career choice motives)	--"--	318
Hytönen	1970 and 1971	personality and behavior in teaching practice	tests (EPPS)	149
Karvonen	1971	anomy, rigidity	questionnaire	318
Kansanen	1971	affective aims of teaching	semantic differ. questionnaire	60
Kansanen	1971	educational aims	--"--	268
Kansanen	1972	--"--	--"--	250
Kansanen	1974	--"--	--"--	42
Rantala	1981	values and educ. attitudes	questionnaire	297
Aho, L.	1982	opinions	--"--	288
Perho	1982	vocational and study motivation	panel study	53-74
Uusikylä	1983	study experiences	questionnaire	80
Louhisola	1983	opinions about schooling	questionnaire	70
Korpinen	1983	self-concept	questionnaire (EPI, TSCS)	90
Aho, S.	1984	development of personality study experiences	questionn.	83
Nieminen	1984	mental health	--"--	87

The third trend in the research on teacher training is the later development of a teacher. An example of studies in this group is a study by Renko dealing with the teaching skills of a teacher and its implications for the efficiency of teaching (Renko 1971). Several studies have been made in the last four years on the problems of stress in a teacher's job (Mäkinen 1982, Ojanen 1982, Aho, S. 1981) indicating the growing interest in the later professional development of a teacher.

Of the above three basic areas of studies (see page 31) we are dealing with the process of teacher education, the development of the students. Therefore, some of the reports in Table 1 have been chosen for closer scrutiny.

2.2.1. Changes of attitudes and values during the teacher training period

In the late 1960's the attitudes and values of student teachers were a topic of much interest, and sociological theories of social attitudes were taken as models. Though these reports are almost 20 years old, it is interesting to have a look at their methods, theories and main results. Some of the results were already summarized in Chapter 1.5. in connection with the Finnish research on the "good" teacher.

Ruoppila (1967) has investigated the attitude differences between young and advanced university and college students. The data was collected in the late 1950's using the Eysenck Public Opinion Inventory, Allport's A Study of Values and Takala's Educational Preferences Schedule. The investigator concludes that the differences that were found were rather

small and do not justify the conclusion that there is a tendency towards the liberalization of attitudes during the university/high school years.

Karvonen (1967) uses a theoretical framework based on the idea of attitudes as three-dimensional. Among other tasks of a more theoretical nature, he surveys the change of attitudes and their differences in four teacher training institutes. He found differences in the attitudes of male and female students. Male students' attitudes towards national defense and politics were more positive and more aroused than female students'. The latter group had more positive attitudes towards religion. Seminary students had more positive attitudes towards national defense and religion when compared to college students (Karvonen 1967, 81). Consistent changes in the attitudes could not be found either in the structure or in the intensity of the attitudes (81-88). So, in this respect, the studies of Karvonen and Ruoppila are in contrast.

Asp et al. (1966, 1967; Lahdes 1971, 4-7) report that teacher training changes the attitudes of students: positive attitudes towards pedagogical studies and teacher-centered and conservative attitudes are more prominent at the end of the studies. Prospective subject teachers and elementary school teachers differ from each other only to a minor extent.

Kansanen (1974, 11-14), however, notes that when the students are asked to state their opinions on the aims of Finnish school education, their attitudes are more negative at the end of the second year and most positive at the end of the third year. This developmental trend is quite different from the above previous Finnish results and reveals that the development of attitudes is not linear, but greatly

influenced by the curriculum of the study-year (see Kansanen 1974, 11-12).

The above studies have been made with a cross-section method, and the differences between cohorts must be counted too. The studies also date back to the 1960's and it is questionable how relevant they are to our teacher education system. In the study by Rantala (1981) the value- orientations of primary school teacher students of the 1st and 2nd year course did not differ from each other to a great extent.

There is in international educational research a growing amount of evidence about the changes of attitudes during the training period. Students first become increasingly liberal, progressive or humanist, but there seems to be a dramatic change in a more conservative direction during the first years of teaching. This change depends, however, on the individualistic features of a student. Veenman (1984, 146) reviews the literature and makes two comments 1) liberalization is a general effect of the university and not particularly an effect of teachers' colleges, and 2) "the change in attitudes does not follow a similar pattern for all groups of teachers, but depends in part on personal variables, on preferences for particular subject matter, on the quality of teacher training, and on situational characteristics of the work place." He concludes that the "subject subculture" is a pervasive phenomenon.

2.2.2. The personality of a student teacher

Hytönen (1973) investigates the relationship between the personality traits of students and the way of acting during the practice teaching period. Based mainly on the theory of

a need-system of personality by Murray, 1938 and Edwards 1959 (EPPS-questionnaire) he gives a summary of the tested and found connections. The summary is translated in Table 2.

Hytönen describes five factors of teacher behavior during the teaching practice situation: the manner of conscientious teaching, the way of acting during the feedback (or critic) session, the flexible teaching behavior, the dimension of appearance and the general dimension of teaching behavior. Conscientious teaching behavior was explained by personality variables relating to endurance and not being impulsive. Flexible teaching behavior was related only to impulsivity. The general factor of teaching behavior was connected with

Table 2. Personality and behaviour in practice teaching (Hytönen 1973, 122)

	Consc. teach. behav.	Behav. during critic sessions	Flexible teaching behavior	Appear-ance	General student teaching behavior
N. Achievement					
N. Deference		+			
N. Order					
N. Exhibition				+	
N. Autonomy					
N. Affiliation					
N. Intraception					
N. Succorance					
N. Dominance					+
N. Abasement					
N. Nurturance					
N. Change					
N. Endurance	+				
N. Aggression		-			
Sociality				+	+
Neurotism					
Impulsivity	-		+		
Dominance		-			+
Sensitivity					
Sociocentrism					
Intellectuality					
Psychol. attit.					
Mental rigid.	+				
Ach. motivation					

dominance and sociality. 15-30% of the variances of teaching behavior dimension (using different respondent groups) were explained with these personality traits.

The above personality traits are used among other measures of personality in the study by Jussila (1976) to investigate the career choice motives of the applicants for teacher training. He reports that career choice motives are connected with the background of students, their self image, needs and personality traits. Especially the most important career choice motive, "calling" or "vocation", relates to need endurance, need nurturance, need dominance and need intraception. In the test of self image, "vocation" was connected with sociocentrism and creativity. When the Eysenck- personality test was used, extraversion was positively related with the career choice motives "vocation" and "the possibility of influencing", but negatively with external motives (salary etc.) and "teaching as a substitute to some other career". The personality trait of neuroticism was negatively correlated with these motives.

The study by Korpinen (1983) highlights the question of the personality of class teacher students. She defines "self" in a phenomenological way by Rogers: it contains the observations of oneself in relation to others, and also ideals, aims and values. These observations form a conscious and organized system in the phenomenological field. Difficulties arise in the methods of measuring this concept of phenomenal self. Korpinen uses The Tennessee Department of Mental Health Self - Concept test and in addition to this, Eysenck's EPI-C test. She gets three common dimensions to describe the personality structure of student teachers : Self Satisfaction, Self Esteem and Religiousness. Two of the dimensions might also have been labelled according to Eysenck: extraversion(=sociality) plus balance-neuroticism

(containing self-satisfaction) and extraversion (=impulsivity) (containing self-esteem). The third dimension explains only a minor portion of the variance and is of no importance (Korpinen 1983, 48-49).

Comparisons between the above results are difficult, because the study of Korpinen is mainly a pilot study. Extraversion seems to be a central dimension in student teachers' personality and it is connected with the trait of balance and career choice motives of "vocation" and "the possibility of influencing". However, extraversion splits into two subdimensions, sociality and impulsivity. Both of these are connected with teaching behavior: impulsivity with flexibility and sociality with general teaching behavior. It is important to note, that impulsivity is negatively related to conscientious teaching behavior.

Perho (1982) investigates the nature and significance of vocational and study orientation in the class teacher education in the University of Joensuu. He follows a group of students from the beginning of the entrance examination to the end of their studies. The personality traits that were connected with success in student teaching were rationality and fluency. Perho claims on the basis of his results that the ambitious and rational way of studying has become more popular because of the strict selection of students for the training institutes. Furthermore, the training does not utilize the students' internal interest in education, vocational and human-centered elements of the career. (Perho 1982, 155-170)

Teacher personality was under discussion in Chapters 1.4. and 1.5. The conclusion was that there is no clear evidence of any static features of "good" teachers. Dieterich et al. (1983, 24-57) make a synthesis of international psychologi-

cal research on teacher characteristics, and show that the question of a distinct teacher personality is highly problematic. Among other things, situational factors affect teaching:

> "Es mag sein, dass wir die Persönlichkeitsmerkmale effektiver Lehrer schon ganz gut kennen, aber wir wissen nicht so recht, was Personen mit diesen Merkmalen im Unterricht so viel anders machen als Personen, die diese Merkmale in geringerer Ausprägung haben." (Dieterich 1983, 53)

2.2.3. Study orientations/Learning style/Cognitive style

The study by Perho also reports on the study styles and orientations of Finnish class teacher training students. He reports that study orientation in Finnish class teacher training differs from that of English university students. Academic motivation is rare and non-conformistic studying more popular. He uses the questionnaire of Entwistle and the comparison is made with data that has been gathered in the middle of the 1960's in Britain (Entwistle and Wilson 1977). Changes in time in addition to the differences in target populations, and international differences must therefore be kept in mind.

Perho combined the original measures of Entwistle on the purpose of being at university with a dichotomized variable, called earnest vs. collegiate study orientation. In addition to this, he investigated the original variable of Entwistle called syllabus-bound/syllabus-free, which depicts students' attitudes to the studies. He found that students tend to be more syllabus-free in their studies which may indicate a

certain kind of dissatisfaction towards the study program in use. (Perho 1982, 98-101)

Research on learning styles of teacher students is a new area in Finnish educational sciences. Heikkilä (1983) reports on the theoretical background and on a pilot study using the theory of Kolb, which he intends to utilize in a study on teacher students. In the pilot study the respondents (teachers) seem to be "accommodators": they process knowledge in an active, emotional and concrete way. The theory of Kolb may contribute to a great extent to the understanding of the teacher education process, though there seems to be diverging opinions about its appropriateness to this field.

Leino and Puurula (1983) investigate two cognitive styles (Conceptual Level by Hunt and Field-Independence / Field-Dependence by Witkin; see Hunt et al. 1978 and Witkin et al. 1975) of students that were accepted for teacher education in the University of Helsinki. The differences between the cognitive styles of the three groups of students were significant. Prospective instructors in handicraft were the most Field-Independent and the ones in home economics the most Field-Dependent. The selection procedures that are in use may eliminate other personality types, or students in the different teaching areas differ in this feature.

Findings of a similar nature are frequent in the literature of Field-Independence/Field-Dependence. Teachers of mathematics and industrial arts teachers are more field-independent while teachers in elementary schools are according to some studies, more field-dependent (Witkin et al. 1975,67; Stone 1976). In addition to this, Field-Dependent persons tend to be socially sensitive while Field-Independent persons tend to be superior in analytical thinking (Witkin et

al. 1975, 14-20 and Goodenough and Witkin 1977, 6)

Significant differences between the study groups were also found in the measure of Conceptual Level. Prospective class teachers were found to have the highest and handicraft teachers the lowest CL. According to Hunt, persons who score high in the CL- test are open to new ideas, show concern for others' ideas and feelings. They seek a compromise that is suitable to everyone and reveal tolerance of uncertainty, ambiguity and difference of opinion (Hunt et al. 1978). In a way, these kinds of persons are flexible, which is one of the most important features of a teacher (Joyce et al. 1981).

2.2.4. Student experiences of the new teacher education

The system of Finnish teacher education was renewed in the late 1970's and educational researchers launched out gathering feedback from the students on the effects of the new training. The results of three recent reports are similar: class teacher training is claimed to be too theoretical, containing too many statistical, research methodological and sociological courses. On the other hand, courses that relate to teaching something (music, maths, etc) or practice teaching are evaluated high. (Aho 1984, Louhisola 1983, Uusikylä 1983b)

It is interesting to notice that evaluation of the impacts of teacher education in the 1960's (Asp et al. 1968) gave similar results: lectures were felt to be too theoretical, passifying and the time-table was too busy - but practice teaching was evaluated as useful. At that time the training of class teachers took only two years- it was extended

to three years in the early 1970's and to the present four years about ten years later.

Uusikylä (1983a and 1983b) reports on the preliminary results of longitudinal research of one student cohort in the University of Helsinki. He aims at describing the process of student development from a green student towards a professional teacher using an intensive, partly idiographic method. The students of the first and second year course of his study think that the training has supported community spirit and has been reform-oriented. It has promoted mental health, been positive and roused interest in the profession of a teacher. On the other hand, the training has not given students chances for individual decision-making, it has favored imitation and has been formal, fragmentary and superficial. (1983a, 34-39)

2.3. Research on subject teacher students

There was hardly any research on subject teacher students in Finland until the 1980's. Asp et al. (1968) report on the opinions of secondary school teachers concerning the relevance of the training to their jobs. Teachers were mostly dissatisfied with their training (in the 1960's) considering it to be too short and too theoretical. The candidates did not get to know how to handle children and how to cope with the practical duties of a teacher. Complaints of this nature reveal the strong emphases on academic knowledge and on subject content during the training. The new teacher training has promoted educational sciences to a more important position. Studies on the subject teacher students have also started.

Panhelainen and Malin (1982, 31) surveys students' selection

into higher education. They report that females and students of the humanities have the most positive attitudes towards the profession of the teacher. They are also more altruistic when compared to males and students of other fields.

Niemi (1984a, 1984b, 1985) studies the personality and teaching preferences of subject teacher students. She uses the personality theory of Cattell, but utilizes only the traits that are presupposed by a teaching situation. If we define the teaching situation as an interaction process where the social structure and the aims of teaching are essential features, we get extraversion, parmia-threctia (courage-shyness), ego strength, self sentiment strength and superego out of Cattell's original 16 traits. After the empirical investigation of the dimensions she changes the labels as follow: anxiety-integration, traditionalism-originality, ego weakness-ego strength, introversion-extroversion, unconscientious- conscientious (see also Part II, Chapter 2.1.2., where a detailed description of the dimensions is given). With these five traits she attempts to discover regularities among the teacher students in their attitudes towards teaching (Niemi 1984a) and to the experiences of the training period after a year's follow-up (Niemi 1984b).

Niemi considers the trait-theoretical framework to be a general apparatus to help us to understand the process of studying as experienced by a student. An attempt is made to integrate a static trait-theory with more profound interpretations of data; including various data-gathering methods (soft-data). She found that introvert and conventional personalities experience more teaching problems. The training period in general was exhausting, and anxious and weak personalities felt more unsuccessful. They had more psychosomatic symptoms and got lower grades in student teaching.

The personality traits, with the exception of conventionality, do not correlate with the success in student teaching in the study of Niemi. However, they affect the experiences and perceived problems of a student and then, as background variables, to the grade on student teaching. In this way, Niemi depicts two paths in the training process: the one to success and the one to failure. An important question in this process is the role of teachers: how to back up the development of a student, to break off the circle of failure. (Niemi 1974b, 33).

On the relationships between personality and teaching preferences Niemi reports that conventionality is one of the most central traits. It correlates positively with an authoritarian attitude (=respecting the present norms and authorities), practical role (teacher is more like a civil officer) being impersonal and not emphasising emotions. In addition, it correlates negatively with pupil-centered teaching and being an active member in cultural and social affairs. Some of these correlations appear also in the traits of introversion and ego weakness. We should question, what the reasons are for valuing these behaviors of a teacher in student teaching (Niemi 1984a, 40-42)?

3. Study orientations

3.1. The concept of study orientation

In recent years international research on higher education has produced extensive information about the study process and the manner of acquiring knowledge. The roots of these studies go back to the study methods investigations. Various concepts have been used and developed to describe studying as a process of gathering, processing and producing information. Some of them, e.g. cognitive style, belong to the area of cognitive psychology. Cognitive styles are habitual modes of information processing and they are more or less permanent individual habits or traits, while cognitive strategy, on the other hand, is a function of the conditions of particular situations, defines Messick (Entwistle 1985, 90). Cognitive structure by Neisser (1967, 287) is 'a nonspecific but organized representation of prior experiences'. Of these three notions, we are here mainly dealing with the latter, cognitive structures.

Leino, A-L. (1980, 17) takes the theoretical concepts of styles and strategies, and considers styles to be relatively stable while strategies are responses to particular tasks. In the title of her report she prefers the term "learning process". She avoids the concept "cognitive style" and points out that the sharp division between cognitive and affective variables is not justified (see also Leino, A-L. 1982, 1). This point is accepted here: the distinction between affective and cognitive factors is artificial.

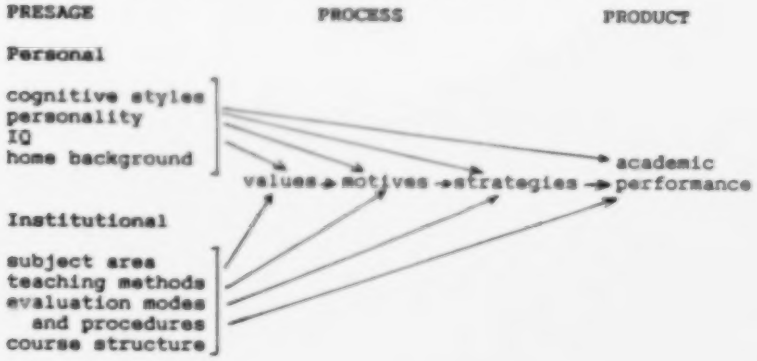
A somewhat different manner of dealing with the relations between styles and strategies is reported by Leino, J. (1981, 18), who draws a hierarchy of cognitive processes:

information is operated by processes which are utilized by strategies whose action is initiated, monitored and regulated by metacognition. To continue, previous experiences have created a rather permanent structure of knowledge, metacognitions, which affect the way we deal with new information. This process is holistic and feelings and attitudes play a crucial role.

Perry (1970) has studied the moral and ethical development of the students in a liberal arts college and relates the qualitative changes in the student's thinking to his/her personality growth. He studies how the students construe the world: "the nature and origins of knowledge, of value and of responsibility". He argues that one's level of processing is closely related to the whole stand towards the world and acquiring knowledge.

The model of a study process by Biggs (1978; see figure 1) has the same elements: personal cognitive styles and person-

Figure 1. Biggs' model of study processes



ality integrate with values, motives, strategies. It should be noted that the original model of Biggs is called "a model of study processes". Biggs does not mention belief-system, he seems to be deliberately stressing the idea of a student doing something: reproducing, achieving or organising and internalising. A student is seen fundamentally as an active person, making his/her own decisions. Thus ATI- tradition by Cronbach is clearly to be seen in the model: aptitude-treatment interaction leads to a dynamic model of studying.

The notion of "study orientation" is used by Noel Entwistle et al. (1979, 375-378) in connection with an attempt to bring together studies from diverse sources: Marton, Pask and Biggs above all. It is used as a higher or broader concept containing approaches, styles and strategies. Study orientation is an intention which is related to underlying motives and which affects the strategies adopted (Entwistle 1981, 102). (See figure 2.)

Figure 2. The hierarchy of the central notions of study process

Study orientation (and intention)	→ Motivation (personality)	→ Approach (style)

Perry (1983) notes that the nomenclature of the field is unstable. We speak of 'study patterns', 'learning styles', 'cognitive styles', 'study styles' etc. In addition to a more profound reflection and definition of the area, we need a specification of the phenomenon in question in order to know what we are actually measuring. Ropo (1984, 49-59) reviews the relevant literature and makes a summary consist-

ing of nine concepts of study or learning styles. He takes the stand accepted also here: study orientation is the most abstract concept when compared to the others. Like Entwistle, Ropo defines study orientation as a student's intentions, and he considers them to be relatively consistent.

The ideas presented by Perry and Biggs are connected later, in Chapter 4, to some selected thoughts from the sociology of knowledge. Studying in higher education is an active process. A student constructs his/her own reality, his/her consciousness is intentional. The values he/she holds have an effect on the study process. In this study, study orientations are defined as indicators of a person's ideology. The definition of the notion "ideology" is presented in Chapter 4.

3.2. Models of studying study orientation

The relationship between study success and learning styles in higher education has been investigated thoroughly within a few years. Two opposite methods have been used: quantitative and qualitative. The former focuses on the development of questionnaires, and data is based on large samples. The latter tradition uses case-methodology and e.g. stimulated recall-technique. Both methods, however, have produced same kind of results. Despite the methodology, investigators have aimed at classifications or typifications. Either the phenomenon in question (study style/ learning style/cognitive style) or the students of the study have been classified. Marton and Säljö (1976) uses a classification called surface-orientation/ deep-orientation, Pask (1976) uses the terms holists/serialists, Biggs (1978) and Entwistle (1979) have a classification of meaning orientation, reproducing orientation and achieving orientation.

Perry (1983) discusses recent research on learner-characteristics and points out: "Could a certain constellation of learner-characteristics represent less an enduring student-type and more a moment of evolution in a student's notion of what learning is all about?" The opinion accepted here is that typologies (dimensions, factors) are useful devices for describing and summing up, but they are not to be seen as static or all-embracing. (see also v. Wright 1984)

Those researchers who use quantitative methods base their work on the previous studies of study techniques and methods and, in addition to this, on trait-theoretical personality studies. The researchers who use qualitative methods stress the importance of environment and circumstances in the learning process. For example, Laurillard (1979), an interactionist, uses the terms of operation and comprehension learning to describe "the ways in which students think about and structure the subject matter of their learning task" (1979, 407). She claims that these characteristics are context-dependant, and that the learning process can be seen as a decision-making process. Students do not possess inherent, invariant styles of learning, she claims (1979, 408).

Wilson (1981, 150-165) reviews the literature and research findings on student learning in higher education and attempts to create a new synthesis of these. He distinguishes five models of student learning in higher education: 1) The academic achievement game model by Entwistle and Wilson (1977), 2) Bigge' presage, process and product model (Bigge 1978), 3) Entwistle's distinctive approaches model (Entwistle et al. 1979), 4) Laurillard's interactionist model (Laurillard 1978) and 5) Wilson's developmental model, a synthesis of all these (see figure 3, next page).

Wilson admits that the models are partial and competing, but at our stage of knowledge they are better than nothing. We

lack, for instance, maturational data about students, or data that gives information about the qualities of a student at the very beginning of his/her studies and how far successful study at university develops these traits. Wilson points out, too, that we should question the term 'successful study': "Academic performance as conventionally assessed may be an inadequate criterion of the achievement of the intellectual goals of the university: or is it assumed that the distinction between classes of degree reflects the attainment of levels of thinking and understanding as well as knowledge and skills?" (Wilson 1981, 151)

Figure 3. A Developmental Model of Student Learning (Wilson 1981, 162)

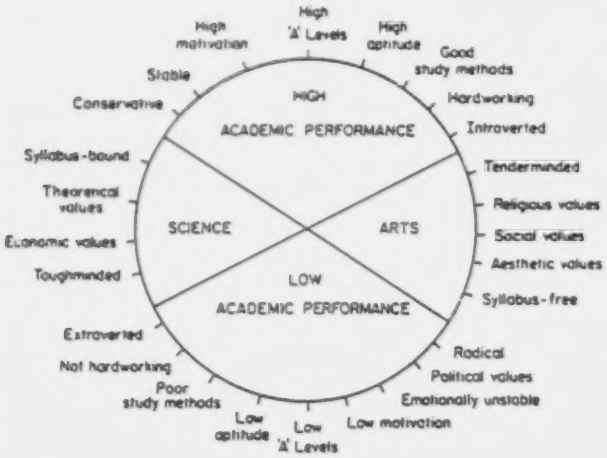
This remark of Wilson accords well with the task of a university: to promote critical thinking. If we consider the new aims of Finnish teacher education (Chapter 1.2.) (= the strong emphases on personality growth towards a socially oriented, highly educated and humanistic personality), Wilson's model covers that (wide) purpose. It attempts to draw together psychological and sociological (sociocultural) factors, and stresses the change from dualistic thinking to relativism. Wilson does not include study-years in his model: the pace of development depends on individual factors. (p. 163-164)

Unfortunately the model covers theoretically too many ideas. In a way, it is a summary of everything that is known or aimed at in higher education. It is impossible to use it in empirical research as a medium, but, it is useful and informative because it shows the wide opportunities available in the research of that field.

3.3. Individual and contextual differences in study orientations

The links between personality and study orientation are highlighted in the studies of Entwistle and Wilson (1977; Entwistle et al. 1979; Entwistle 1981; Entwistle and Ramsden 1983, 69). In the Academic Achievement Game, for instance, students who were tenderminded and hardworking, had good study methods, high aptitude and motivation, who were stable, conservative and syllabus-bound were the winners of the game (1977, 148). Figure 4 depicts the main results of the study. The information was gathered with e.g. scales of personality and social attitudes, a questionnaire concerning values and an inventory covering motivation and study methods.

Figure 4. Relationship between students' characteristics, faculty membership and level of academic performance (Entwistle and Wilson 1983, 69)



In later studies students who rank high in meaning orientation are shown to be theoretically-oriented and to have high scores on thinking-introversion. The reproducing students have high scores on practical outlook and masculinity, and the strategic (achieving) students are characterized by high anxiety. The unmotivated group is described as unresponsive and conventional. (Entwistle and Ramsden 1983, 76)

It thus seems that personality traits and study orientations do have substantive correlations. One reason for this is the similarity of items. E.g. Biggs (1978, 267) describes the technique of choosing the items for his Study Process Questionnaire as follows: "The items were for the most part written as presumed operationalisations of those personality

variables that a search of the literature indicated might be relevant to approaches to academic studying." He comments further on the preliminary results of the questionnaire, and affirms that study process variables are academic manifestations of certain basic personality characteristics. Furthermore, he concludes that meaningful learning and rote learning are tied to the whole stance a person adopts towards the self, other persons and the external world, namely the dimension of internality-externality (Biggs 1978, 269). This conclusion is hardly surprising considering the content and technique of writing the items.

Entwistle and Ramsden (1983, 33) describe the development of inventories and mention that one of the earliest versions contained items indicative of extraversion and neuroticism. They rely on the theories of personality traits by Eysenck and Cattell, and (65-67) define personality according to Allport as "the dynamic organization within the individual of those psychophysical systems that determine his characteristic behaviour and thought", and proceed to consider the concept of "trait": "...how much consistency is required to provide evidence for the existence of a trait?" and "...which traits have proved most useful in describing personality?"

The answer to the first question states that if traits can be measured and if traits are found to be consistently related to a variety of aspects of behavior, then it is justified to use them in psychology. The answer to the second question goes back to Jung and his two different personality types - the extravert and the introvert. This leads to Cyril Burt (extraversion/ introversion and optimistic/pessimistic outlooks of life) and to his two most famous students Eysenck and Cattell. The five main traits of personality for Cattell are anxiety, extraversion, tender-

mindedness, radicalism and conscientiousness, which have also been used by Eysenck. Eysenck called tendermindedness vs. toughmindedness and radicalism vs. conservatism social attitudes. (Chapter 4.3. deals with this matter further.)

The roots of the theories and questionnaires of study orientations, as here surveyed, thus relate to the trait-theory of personality.

What, then, are the main results of the contextual differences in study orientations?

Some results of the differences between study orientations of student groups were presented in figure 4. Students of science tend to be syllabus-bound, toughminded, conservative and supporters of economic and theoretical values according to Entwistle and Wilson (1977). Students of arts, on the contrary, respect social, aesthetic and religious values, and tend to be syllabus-free and tenderminded. Arts students are more likely than the other groups to use meaning-orientation in their studies. This result is confirmed in several studies (Ramsden 1983, 698; Entwistle 1981, 274; Ramsden and Entwistle 1981, 273; Watkins 1982b, 81; Watkins and Hattie 1981, 390). (A Finnish reader is reminded that the concept of "arts" is broader in the English usage: history and literature are among the arts subjects contrasted with science subjects, because imagination and personal taste are here considered to be more important than exact calculation.)

Biggs (1976) investigates, with an Australian sample, the question of the differences between arts and science students. He reports sex differences between faculties: "females being more likely to use a reproductive approach in Arts and a transformational one in Science, but males using

transformation optimally in Arts and reproduction in Science". Reproductive means here that "the student gives back prescribed material intact", and transformational that "the student ranges widely over material and injects his own meaning and interpretations" (Biggs 1976, 70). The study subject (faculty) is not important. There are alternative roads to academic success, concludes Biggs. He lists several factors that can affect the choice of a student: examination techniques, use of seminar and lecture presentation, stress on set texts and so on.

The effects of academic departments on students' approaches to studying is explored by Ramsden and Entwistle (1981). The most interesting result was that students' perceptions of the courses were linked with the study orientations (see also Ramsden 1979). The reproducing orientation was associated with a heavy workload, the achieving orientation with perceived clear goals and standards, and meaning orientation correlates with good teaching, openness to students, good social climate and freedom in learning. The teaching methods of a department and the way in which courses are organized, seem to have great influence on the study orientations that the students develop. (Ramsden and Entwistle 1981, 375-376; see also a more detailed paper on this in Entwistle and Ramsden 1983, 179-192).

The analyses of the above data is continued by Ramsden (1983) in order to investigate the differences between students in British universities and polytechnics. Contrary to expectations, the university group is less likely than the polytechnic group to use deep approaches to studying. They are also reported to experience of poorer teaching. In this report, faculty differences overwhelm the institutional ones: science and social science students are more strategic (achieving) than the arts students.

Watkins and Hattie (1981) explore the relationship between the study orientations, faculty, sex and age. By using a multivariate approach they examine the interactions between these factors. They conclude that in all faculties males (regardless of age or academic year) and younger students (regardless of sex and academic year) are more inclined to be pragmatically oriented and to adopt reproductive study methods. These approaches to study are unfortunately also negatively correlated with academic success.

3.4. Theoretical framework of the study: the extension of Biggs' model

For the theme of this study, the most interesting of the study-style models is that of Biggs (see figure 1.). It takes into account the interaction between values, motives and strategies as determinants of academic performance.

In the continuation study Biggs obtained three second-order factors: **reproducing, internalising and organising:**

> The values that dominate the behavior of a reproducing person are instrumental, external and pragmatic. He studies the minimum to get a degree. He aims at a comfortable (well-paid) job as soon as possible. In contrast, the values of internalising are self-growth or self-actualisation, hence a person uses wide reading and interrelating things. The values that dominate the orientation towards organising are (individual) competing and winning. His motivation towards his studies is that of need-achievement. (Biggs 1978, 275)

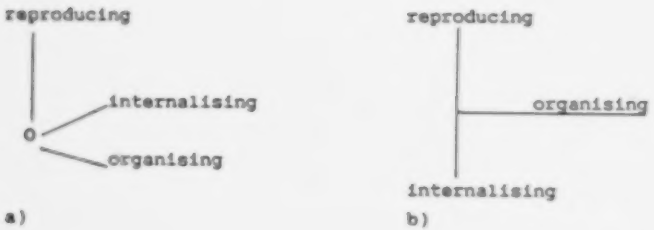
This theoretical model closely fits the results from the Entwistle study using a completely different inventory of study strategies (1981, 100-102). However, Entwistle reports that a fourth dimension can be traced. In the report from 1979 the fourth factor is called "stable extraversion" (Entwistle et al. 1979, 372-373). Later on, the fourth dimension is labelled as non-academic orientation. This dimension contains low levels of intrinsic motivation combined with high level of extrinsic and/ or social motivation (Ramsden and Entwistle 1981; Entwistle and Ramsden 1983, 48-53).

Some research reports confirm the three-dimensional model of Biggs (Hattie and Watkins 1981; Watkins and Hattie 1980, see, however, the factor structure p.1128-1129 which indicates more than three factors) - some find more dimensions or doubt the relevance of the static, personality based theory. Watkins, for instance, reports that the dimension of reproducing splits into surface/confusion and operation learning factors (Watkins 1982b). In another study Watkins states that cultural differences may exist that hinder the meaningful use of the Biggs' measure or theory (Watkins and Astilla 1982, 106; see also Hattie and Watkins 1981)

The extension of the model of Biggs is made here by adding one more dimension accentuating the social motivation of studying. This dimension is deduced from the above results of Entwistle (the fourth factor) and on the other hand from the ideas of Biggs (1978) concerning two possible models of combining the three dimensions of his model (figure 5). The first theoretical possibility is to consider the three factors as independent of each other. The second possibility is to imagine the orientations of pragmatism (=reproducing) and internality as two opposite ends of one basic dimension to which the achieving orientation is in contrast. This latter

image is reminiscent of the conservatism vs. radicalism / tender-minded vs. hard-minded theory, except that it lacks the radicalism end.

Figure 5. Two possibilities of combining the dimensions of figure



The latter theoretical possibility (or classification of phenomena) is accepted here and the second dimension is characterized as follows:

> **An achieving student** accepts the existing circumstances in order to be most efficient in his/her own pursuits, and an alternative way of behaving would be to act in a dynamic, reforming manner. **Reforming orientation** contains a positive attitude towards new ideas, even radicalism, hence the label "reform-orientation". The person who is reform-oriented is liberal and critical to existing circumstances. He is motivated to study educational sciences by a desire to renew the traditional way of educating. S/he seeks alternative readings and is actively involved in student-life (social extrovert). During the lessons s/he keeps on questioning and pointing out opinions of his/her own.

Figure 6. gives the main content of the four theoretical types of study orientations that are to be used in the empirical part of the study.

Figure 6. An extension of Biggs' model of study orientations

	Value	Motive	Strategy
I reproducing	pragmatism; instrumental values, university is means to another end.	test anxiety, neuroticism: motive to study is fear of failing	class dependence;fact-rote. Minimax:goals are those defined in the course, no more: rote learned to a reproductive criterion.
II internalising	openness,internality; self-growth or actualisation as overall goal, university permits this	academic motivat.; intrinsic, what contributes to growth is interesting, self-motivated	meaning: work unsatisfying unless understood and incorporated with existing knowledge. Class only basis for stimulation.
III organising	winning through competition:university a game to show excellence	achievement motiv. need for success, low anxiety.	structuring, organising work, meets deadlines, plays the game, individual study methods
IV reforming	reforming: criticism sociality	motivated by a desire to renew educational practice	seeking extra reading, interest in social activities group work

4. The formation of structures of knowledge

4.1. The concept of ideology

The theme of the present study is "Study orientations as indicators of ideologies". Thus far we have examined the official aims and the research tradition of teacher education in Finland. In addition to this, a short survey of the investigations of the features of a good teacher was made. These elements, however heterogeneous they may seem, must be taken into account when aiming at an empirical study on study orientations of student teachers. I hope, that they have created a network broader than needed for a plain positivistic study with exact variables. The intention has been to sketch the ethos, the code of values by which our students live while studying for a teaching career.

Thoughts about education and studying do not appear in a vacuum. They are socially relational, situation-dependent. This is the starting point of e.g. phenomenologically oriented research on teacher thinking (Elbaz 1983). The goals that teachers should follow are stated in formal curricula, syllabi and textbooks, but the extent to which a teacher in practice utilizes them depends on situational factors and on the teacher's interpretation of these factors. The theoretical knowledge and experiential knowledge integrate and mingle with the personal values and beliefs of a teacher creating something we might call the "practical knowledge" of a teacher.

Another way of expressing the focus of this report is to use the notion of ideology, but defined in a broad and mainly neutral manner. Ideology is a concept of much controversy, including is the dispute as to which field of science the term belongs: philosophy, psychology or sociology. The ori-

gins of the dispute dating from the French Revolution and Destutt de Tracy, are repeated in almost every paper on the concept (e.g. Schnädelbach 1976), but to modern usage of the term its history gives little. More informative is the simplification by Carson about Marx and Engels: "Sometimes by ideology they meant all thought, or only normative thought, or all normative but false thoughts" (Carson 1983, 15).

The three meanings of the concept of ideology have survived to the present which is to be seen in the philosophy of Hirsjärvi (1981). She compares the concepts of "world view" and "ideology" and comes to the conclusion that the latter carries negative overtones. Ideology is used for views that are opposite to a speaker's own views, or it "has often functioned as a shield behind which people and humanity have been destroyed". Thus Hirsjärvi seems to think that the concept of ideology is contaminated by the political and power-maintaining struggles related to it, and that the concept of "world-view" might be more neutral. (Hirsjärvi 1981, 33-34; see also Ahmavaara 1976, 108)

Hirsjärvi considers that ideology is always a mental construct which is common to many individuals, while world view has a subjective label. Therefore, ideology is the concept of social sciences and world view belongs to the area of individual psychology, a point which can be accepted.

The first argument of Hirsjärvi about the nature of the concept of ideology cannot, however, be accepted here. The sociology of knowledge admits the third use of the concept: in the meaning of "all thoughts", which is a neutral use of the word. In the new interactionist tradition, e.g. ideology is used to refer to a system of beliefs and values which are held by a group of people, support their interests and are

taken for granted by them as the way things are in the world (Woods 1983, 63).

The question still remains: is the concept in the sociology of knowledge so meshed with various theoretical starting points, that it's of no use in educational research? Defaveri (1983), e.g. in a highly critical article about the use of ideology in educational sciences comes to the conclusion that the disadvantages of using the term are obvious: "It would seem that if the term is to be used at all in the context of education, it would be best not to allow it to be broadened beyond its earlier meaning formulated by Marx." What Marx actually meant by ideology, is not at all clear: Defaveri stresses the moral category of human thought (cf. pages 9-11).

Two dictionary definitions of the concept 'ideology' might be contrasted: "=manner of thinking, ideas, characteristic of a person, group, etc.,esp. as forming the basis of an economic or political system: bourgeois, Marxist and totalitarian ideologies" (Hornby 1983) or "= a systematic scheme or coordinated body of ideas or concepts, especially about human life or culture " (Webster). The latter is essentially broader, it allows the use of ideologies in the context of legal, medical or educational affairs, not restricting the use of the word to political matters. (see also Brown 1973, 9-14; and Carson 1983, 22)

Middendorp (1978, 103-106) outlines a number of relevant characteristics of an ideology as follow:
1) An ideology refers to a doctrine, or at least to a number of related ideas or a belief system,
2) The 'elements' of an ideology incorporate value-judgements about man and society and the relationship of one to the other.

66

3) Ideologies are 'shared' ideas, which are adhered to as a doctrine by certain groups,
4) Ideologies reflect the social position of certain groups or categories of people, and are either oriented towards legitimizing this position or towards legitimizing a position which is aspired towards,
5) An ideology refers to a few central, underlying values (e.g. 'freedom' or 'equality')

The definition of ideology by Middendorp (1978, 107) carries with it the same elements but it is more exact and is thus presented here:

> " An ideology is defined as a system of general ideas on man and society, centered around one or a few central values, which has manifested itself historically as a doctrine adhered to by some groups and categories, and which express the interests of some important social category, i.e. a social class."

Middendorp does not consider the 'functions' of ideology as important (cf. p.107). The stand taken here is that an ideology contains norms (rules for behavior) and is thus prescriptive of action. (see also Carson 1983, 23)

> In this study the concept of 'ideology' refers to systems of thought: beliefs, values and norms that underlie social and individual behavior, e.g. orientation towards studying. Ideology is considered to be a broad construct covering values, norms, beliefs and knowledge, not necessarily bound to economic or political ideas. Ideological views form the core of the motivational structure of personality. (Leontjev 1975, 180-181; Hakkarainen 1977, 13; Puurula 1982)

4.2. The sociology of knowledge and the concept of ideology

During the 70's the sociology of education has done research on the social and cultural reproduction of school knowledge (e.g. Bourdieu and Passeron 1977; Willis 1977; Apple 1979). The notion of ideology has been widely discussed and the Marxist tradition of ideology as false consciousness has been modified to new theoretical definitions. E.g. Apple (1979, 20-25) studies curricula for their ideological commitments and takes the stand that anyone who has values has ideological commitments.

In spite of the fact that these new studies offer interesting considerations, and that e.g. Thompson's Studies in the Theory of Ideology (1984) and Giddens's Central Problems in Social Theory (1979) represent valuable contributions to the study of ideology, the focus here shall be primarily on some selected views of Mannheim, Berger and Luckmann.

Karl Mannheim is one of the main theorists of the sociology of knowledge. He handles the notion of ideology in Ideology and Utopia (first published in 1936) e.g. under the theme: The Transition from the Theory of Ideology to the Sociology of Knowledge. Mannheim sees thoughts as situationally determined but makes two important distinctions: that of "particular vs. total" ideology and that of "special vs. general" ideology. The first distinction concerns single isolated ideas contra the entire mind and the second one the opinions of our opponents contra the thought of all groups. Mannheim thus develops the general form of the total conception of ideology and writes: "What was once the intellectual armament of a party is transformed into a method of research in social and intellectual history generally" (1960, 69).

In Berger and Luckmann's introduction to the proponents of the field the notion of "general ideology" by Mannheim is also considered to be of great importance. "With the general concept of ideology the level of the sociology of knowledge is reached- the understanding that no human thought (...) is immune to the ideologizing influences of its social context." (Berger and Luckmann 1971, 21)

Mannheim (1960, 2-5) characterizes the method of the sociology of knowledge with two points: 1) the approach of the sociology of knowledge does not start with the single individual and his thinking, 2) thoughts cannot be separated from action. The first point means that an individual finds himself in an inherited situation with patterns of thought. According to Mannheim it is not correct to say that the single individual thinks - but "he participates thinking further what other men have thought before him". The second point relates to the collective action between different groups. Mannheim considers the will to change or to maintain as the guiding thread for the emergence of forms of thought. These theoretical formulations are well in accordance with the present study.

Ideologies are social in origin and they grow deep in the personality or identity of people. The three key sentences of Berger and Luckmann (1971, 79) are taken here as axiomatic:

> "Society is a human product. Society is an objective reality. Man is a social product." There exists a continuous interaction between man and society.

Personality, or to use the notion of the original theorists, identity is formed by social processes, but it continuously reshapes the social structure: "Identity is a phenomenon that emerges from the dialectic between individual and so-

ciety. Identity types, on the other hand, are social products tout court, relatively stable elements of objective social reality (the degree of stability being, of course, socially determined in its turn). As such, they are the topic of some form of theorizing in any society, even if they are stable and the formation of individual identities is relatively unproblematic. Theories about identity are always embedded in a more general interpretation of reality; they are 'built into' the symbolic universe and its theoretical legitimations, and vary with the character of the latter." (Berger and Luckmann 1971, 195)

The attitudes, beliefs, behavior of a person all together form his identity. Mannheim (1960, 151) expresses this idea by saying that human beings do not have "traits" which can be viewed apart from them, but we get to know persons, individuals only by living and acting with them: "We are dealing here with a dynamic process in man, in that his characteristics emerge in the course of his concrete conduct and in confrontation with actual problems." The individual becomes a person within society, interacting with others through symbols - language being one of the most important symbols. There can be no man, no personality without his everyday knowledge: "Society, identity and reality are subjectively crystallized in the process of internalization. This crystallization is concurrent with the internalization of language." (Berger and Luckmann 1971, 153; see also Woods 1983, 1-5)

Thus, the study of language is one of the most important issues in the sociology of knowledge. The above phenomenological treatise of the theme is criticized by Hall (1978), though in the context of the work of Schutz. Hall thinks that the practico-historical function of ideologies is lost (in a Marxian way) and that ideas are given primarity over

the substructure. He claims that in phenomenology the objective reality is in a neglected position "...they give the background to every social process" and goes on, "phenomenology must assume that there is nothing to historical reality but what men say, imagine, conceive...". This interpretation of Hall ignores the interactive nature of the individual(s) and the objective reality, which is clearly to be seen in the quotations of Berger and Luckmann above. This oversight somewhat invalidates Hall's argument.

In summary, based on the above selected views of Mannheim, Berger and Luckmann, the sociology of knowledge is a study of the collective systems of ideas. The emphasis is on the study of language. The study does not start with individuals, but with the analysis of the forms of thought and the structures of everyday knowledge as used by groups. Identity or personality is formed by society and certain personality types can be distinguished, but on the whole, theoretical justifications for universal personality traits are not to be found. Theories about personality are a form of more general interpretations of reality.

4.3. Personality and the formation of structures of knowledge

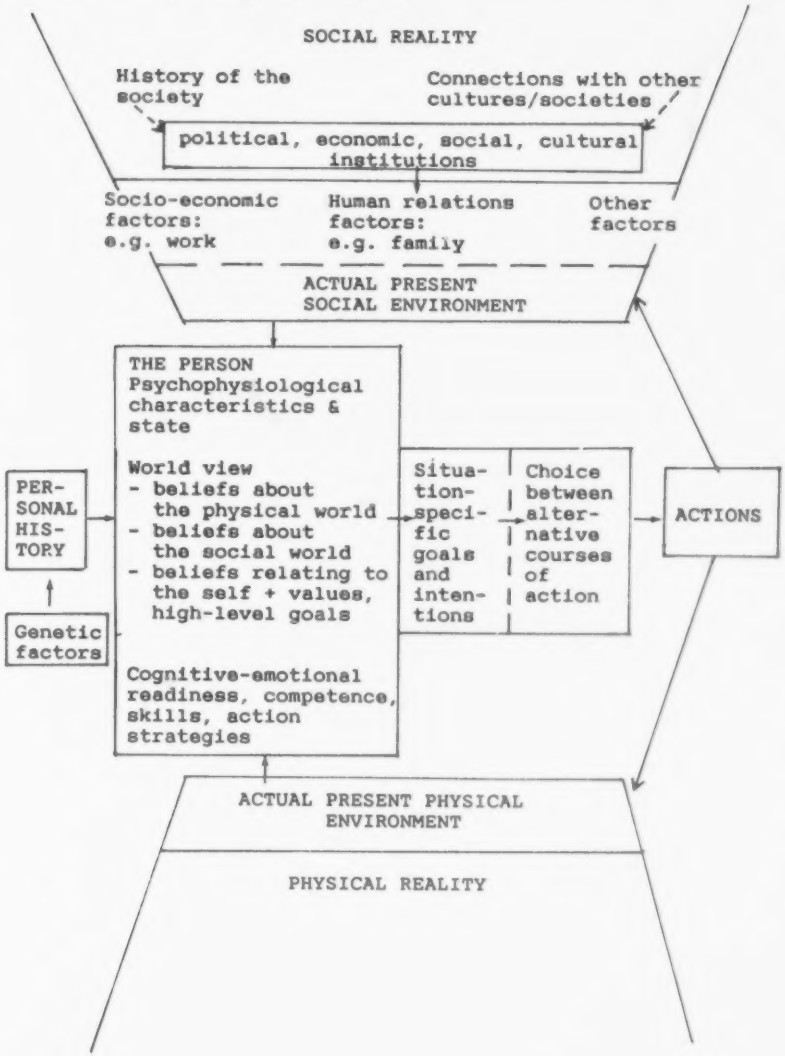
The process of gathering and producing information also has interested modern psychology. Cognitive psychology uses e.g. concepts such as the "internal representation of the world", "schemata" and "cognitive maps" (Bieri et al. 1970; Sanford 1985, 203-206; Neisser 1982, 49-50). Perception is considered to be an active process, where a person selects and interprets a piece of information in terms of his previous knowledge and past experience. The framework of knowledge is continuously reshaped by new information. Motivational and

cognitive elements are tightly linked with each other, and thus values and interests affect the cognitive processes. Emphasis is now on interactionist theories. (Entwistle 985, 7; von Wright 1980, 2; Neisser 1967, 288; Rauste - v. Wright 1983b, 113).

The concept of "cognitive map" as used by Neisser has spatial connotations and therefore von Wright (1980, 2-4) prefers to widen it to the concept of "image of the world". The "schema" is part of the "cognitive map of the world"= "the image of the world". It is the more concrete vehicle for the interpretation of the present environment. According to von Wright a schema refers to "prototypes" of events and to the fact that "man typically organizes his knowledge about the world into chunks of related information" (p. 4).

The process is hard to describe in a diagram, but Rauste - von Wright presents the following diagram about the formation of the world view (1983a, 102). She continues the above ideas about cognitive processes and makes an effort to describe personality as a dynamic system. Personality can best be understood in actual behavior, looking at the activities that an individual decides to do and not to do. Traits of a person are important only to the extent that they come out in his aims or conduct. No personality trait is to be found that applies to all human beings (p. 98) - an idea that relates back to Mannheim (Chapter 4.2.).

Figure 7. The formation of the image of the world (Rauste-von Wright 1984, 12)


SOCIAL REALITY
History of the society
Connections with other cultures/societies
political, economic, social, cultural institutions
Socio-economic factors: e.g. work
Human relations factors: e.g. family
Other factors
ACTUAL PRESENT SOCIAL ENVIRONMENT
THE PERSON
Psychophysiological characteristics & state
World view
- beliefs about the physical world
- beliefs about the social world
- beliefs relating to the self + values, high-level goals
Cognitive-emotional readiness, competence, skills, action strategies
PER-SONAL HIS-TORY
Genetic factors
Situation-specific goals and intentions
Choice between alternative courses of action
ACTIONS
ACTUAL PRESENT PHYSICAL ENVIRONMENT
PHYSICAL REALITY

The above theory-formation is in sharp contrast with the trait-theories of personality. The former is dynamic and the latter static, the former contains a wider perspective and response to reality and the latter concentrates on a few characteristics of a human being, restricting the reality to predetermined positions about the most prominent features. This difference is clearly to be seen when we go on to the personality theory of Eysenck. In what follows, the main emphasis is on the studies of so-called social attitudes. (See also Chapter 3.4. on studies of study orientation and personality)

The origins of Eysenck's theories relate back to the 1940's, and to the publication of the article "General Social Attitudes". Eysenck was influenced by some earlier studies on attitudes and intelligence (Thurstone), and the resulting dimensions, especially that of radicalism-conservatism. He concluded that a connection exists between social attitudes and temperamental factors, and that the "structuring of attitudes takes place along two orthogonal axes: the radical-conservative axis, and an axis provisionally named practical-theoretical" (Eysenck 1944).

The second dimension was changed in later articles to "tender-minded vs. tough-minded" and Eysenck included the investigation of political parties and social classes asserting that parties could be differentiated only in the R-factor. (Eysenck 1951; Eysenck and Coulter 1972)

In later papers on the theme Eysenck et al. (1978) combine social attitudes with genetically determined personality variables and reaffirm the existence of two dimensions: radicalism-conservatism and tough-mindedness (the R and T factors).

The research tradition of Eysenck has influenced the Finnish sociological and sociopsychological research on attitudes. E.g. Koli (1959) presents the organisation of attitudes as a hierarchical system (opinions-attitudes-ideologies) in his mainly sociological study on ideology patterns and ideology cleavages in the manner of Eysenck. In Chapter 1.5. some of the attitude studies of Finnish teachers were reviewed and Eysenck's theory of radicalism-conservatism and tender/ toughmindedness was noted to have been utilized also there.

The criticism on Eysenck has pointed out that it is not certain whether the results apply to other than European cultures. Among other points of criticism have been: 1) item-selection lacks a sufficient theoretical rationale, 2) samples used do not allow for generalizations, 3) the original explanation of the factors seems to determine the interpretation of later studies, although 'new evidence in favour of another structure has been gathered' (Middendorp 1978, 68-71; and also Evans 1965, 42-45 and Brown 1973, 46). Middendorp himself actually tries to avoid these defects in his study on the Dutch population and reports two major dimensions: socio-economic left-right and non-economic libertarianism-traditionalism, and a subdimension of authoritarianism (Middendorp 1978, 269).

Eysenck compares theories and research results of other investigators in the area: Wilson's Psychology of Conservatism, Rokeach's Nature of Human Values, Adorno's Authoritarian Personality among the most famous. He ends the comparison with the sentence:" Seldom in psychology has such consistency been achieved" (Eysenck 1978, 136). It is true, that two-factor theories appear repeatedly and that there seems to be common contents in each factor (see also Kerlinger 1972, 204, on the use of second-order factors to produce the two dimensions). The question remains how much of the

similarity of the results can be explained through the use of factor-analysis and attitude-questionnaires whioh contain items and scales invented by the researcher, and which are moreover based on previous investigations of the same kind?

The notion of ideology as used by Eysenck differs from the definition given here (in Chapter 4.1.). Eysenck thinks that ideology is violent opposition to existing circumstances: "..conservatism and radicalism require the addition of a militant, revolutionary spirit in order to transform these clusters of opinions into an ideology"(306). Furthermore, as mentioned previously, Eysenck studies ideologies as traits of personality, as mentioned previously. This idea is not suitable for the broad definition of ideology accepted here: ideology is not a personality trait, it a scheme or structure of thoughts containing identity.

The second point of disagreement here is the genetical basis of personality, a matter of much controversy in the literature. Introverts are more easily impressed by feelings and thus tend to internalize the attitudes and values of society, extraverts represent the opposite. According to Eysenck, individuals can be classified as extraverts or introverts based on their physiological and genetically inhereted make-up (Reich and Adcock 1976, 40; Eysenck 1985). The position taken in this study is that this matter is extremely difficult to prove empirically. We may accept the division between extraverts and introverts, but only to get an analytic tool for describing personality; this does not imply acceptance of the the ideas concerning the genetical basis. To an educationist, the parts of a human being that can be educated are far more interesting.

The third point of disagreement is somewhat aside from our topic, but nevertheless important. Education, as here con-

sidered, does not mean punishments, blame or causing pain to students in the way Eysenck (1985, 37) describes it: Introverts respond better to pain and blame, extraverts to praise and positive rewards. The ethical nature of education denies the use of negative acts. There are no justifications for the use of such means in education.

Rokeach (1973, 186-187) develops a two-value model of political (sic!) ideologies using the concepts of 'freedom' and 'equality'. He thinks that this model resembles Eysenck's two-factor theory, but points out that liberalism-conservatism cannot be viewed as a single bipolar dimension but as two dimensions, liberalism and conservatism, which are independent of one another. Rokeach further develops a theory of cognitive and behavioural change, which comes much closer to the definition of ideology in this study. Rokeach summarizes all possible contradictory relations within the "total belief system" in a matrix (Rokeach 1978, 220-221). Cognitions about self, values, attitudes, and cognitions about significant others' behavior are set in a hierarchy. Rokeach then compares different psychological theories of change. He says: "All these theories assume that changes in personality and self-conceptions will culminate in value, attitude, and behavioral change."

The new trends of cognitive psychology have taken the researchers far "from the well-trodden paths of experimental psychology", remarks Sanford (1985, 223). Modern research on personality and social interaction has expanded horizons from the static illustrations of personality. He takes as an example the theory of Schank and Abelson, where three "themes" are considered to be important in the information gathering and selection process. The themes are called "role theme", "interpersonal theme" and "life theme". Of these themes, the last one is of interest here. It means the

principal attitude towards life, for instance "luxury life". The life theme guides the most important decisions of the individual.

4.4. Methodological considerations

The formation of structures of knowledge is thus treated from two distinct starting points both in psychology and sociology. The one sees a human being as a dynamic entity, always interacting with other persons and groups, always changing and producing new information. This person is not a lone rider, living in isolation from other people, but an active member of the society. He lives in a net of cultural and historical knowledge. The other trend sees a human being as more static and composed of universal features.

As we noticed in previous chapters, the generally accepted view of the characteristics of good teachers is that they are not static but that they depend on the context of a teaching situation. The plain study of teacher traits or types covers only one aspect of the issue of teaching. Research, during the 1960's, on the traits of a good, effective teacher had come to a certain final point. Dunkin and Biddle (1974, 14) remark that in these "dust-bowl empiristic" studies almost all conceivable teacher characteristics have been under examination, including the teacher's eye color and even the strength of the teacher's grip. Unfortunately, according of them, they have offered "minimal scope for understanding teacher effectiveness". (see also Dunkin and Biddle 1974, 15 and 31-52).

To add to the above sophistication: Lahdes (1983a) reports

of the "bloomian" research on the variables of effective teaching. He makes a summary of the findings which clearly states that the characteristics of a teacher have minor importance on the products of teaching. Only about 5% of the variance of the results can be explained with teacher-variables.

If the above results are valid, the suitable personality traits of an applicant for teacher training should not be problematic at all, according to Lahdes. He points out, however, that there are findings which indicate certain desirable features of a teacher, e.g. ability to plan, self-confidence, flexibility, friendliness, sound ego-image. Lahdes comes to the conclusion that some personality characteristics are important to effective teaching. He argues that especially at the primary level the personality of a teacher has a great influence on the teaching process.

Even if I rely on my own everyday knowledge and suppositions of the real differences between good primary and secondary school teachers and might agree with the views of Lahdes, the previous evidence to the contrary is so strong that we must ask, what is then the merit of the mere investigation and theorizing of teacher characteristics/personality? Why examine study orientations at all? The answer to these questions is simple in this study: I conceive the characteristics and study orientations of a student teacher as an important means of describing the types and variants of common values, shared ideas or ideologies - whichever notion the reader may prefer. The four main study orientations in this study: reforming, achieving, pragmatism and internalizing (see Chapter 3.4.) are in a way caricatures, fictitious images. They help us to find a common language. They are vehicles of interpreting the reality and ethos. It is not supposed that they are in any way universal or static

features.

Another set of questions arises from the conflict between the phenomenological definition of ideology and the abstracted empiricism as represented by the study orientation research tradition. Two themes relate to this: 1) If we accept that knowledge is something within an individual and at the same time something outside of him, how do we study this? Is empirical research in either a quantitative or qualitative manner made impossible with these formulations? 2) What is abstracted empiricism and which are its fallacies?

As to the first question, e.g. Hirsjärvi (1984, 284) asks whether the traditional, positivistic questionnaires or survey methods actually follow the rules of the positivistic philosophy, where the perceptions and experiences of the subject from the reality are supposed to be intersubjectively valid: a division exits between objective facts and the subject. Results of surveys are considered to be independent of the interpretations of investigators. However, the items of the questionnaires represent the phenomenal world of the investigator and the whole process of data gathering represents a certain kind of linguistic communication which demands intersubjectivity and interpretations (Töttö 1983, 17 and 25). (see also Salonen and Olkinuora 1982)

Töttö (1983, 21) argues that it is just as possible to be a fanatic positivist and to use "soft" methods as to be a proponent of hermeneutics and to use "hard" methods. This argument is accepted here. It is assumed in this study that, on an empirical level, we can use some types to describe study orientations and it is possible to study empirically the internalized reality with the traditional questionnaire-based methods. This argument is contrary to the usual

methods of phenomenological or interactionist research (Woods 1983, 16-17) and needs further consideration.

Phenomenological studies are usually conducted with qualitative methods with an aim towards getting more profound or pure information about subjects, or to quote Goetz and LeCompte (1984, 3) on ethnography: " ...the strategies used elicit phenomenologicgal data; they represent the world view of the participants being investigated, and participant constructs are used to structure research." This is, however, just the first step of research. After several studies on the same theme, we have cumulative findings and some kind of classification of phenomena. In subsequent studies we need to verify the previous results and more standardized methods come to be used. (Goetz and LeCompte 1984, 179-190)

The second question concerned the fallacies of abstracted empiricism. Mills (1959) considers the following issues which are relevant here: 1) there exits a distinct tendency to 'psychologism', to reduce sociological realities to psychological variables like personality, attitude, opinion. "Social theory as a whole becomes a systematic collection of such concepts, that is, of variables useful in interpretations of statistical findings" (p. 63), 2) empirical data is restricted to a few, measurable, repeatable facts, 3) a persistent avoidance exists of problems of structure in favour of those of milieu. As a result, claims Mills (p. 73) abstracted empiricism eliminates from inquiry the great social problems and human issues of our time.

I agree with the above points of criticism, but I would query, if they are truly inevitable features of empirical research. The ethical task of a social or an educational scientist is always present. It is just as possible to make a "non-abstracted" study without any thought at all, and to

report it in a fascinating, verbose style as to produce abstracted empirical conclusions with a clear understanding of the limits of your report. In addition to this, I should like to add one more point - perhaps contrary to Mills: The reports that are full of figures, complicated tables and analysis are of course material too hard for the audience that Mills seeks: Those with power and ability to use it and those who are regularly without such power and whose awareness is confined to their everyday milieu (p. 185). But that does not make this kind of research unnecessary. There must be levels of writing, one for adults - one for children, one for specialists - one for laymen.

5. Summary of the theoretical background

In this study an effort is made to investigate three different groups of student teachers: nursery school (teaching children from about 3-6), elementary school (children 7-12) and subject teachers (prepared to teach children from 12 upwards). Education is considered to be intentional activity, which always contains value commitments. The ideological core of the whole institutionalized school-system is common despite the level of teaching. The formal aims of training reflect this common ideological core: the aim of teacher education in Finland is to promote the personality development of students towards an active, highly educated, socially oriented and humanistic personality.

Next a review of research on teacher characteristics was made. The Finnish research on teacher characteristics has followed the international trends. From philosophically oriented psychology of the 1920's we have moved to studies of educational attitudes, then to studies of effectiveness (or teaching skills) of a teacher, and to observation studies. During the 1980's the new trend brings concepts of cognitive psycholgy into use: cognitive styles and learning styles of student teachers.

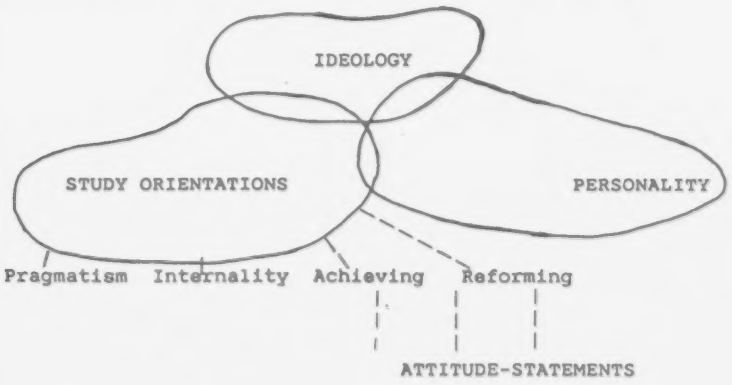
The review of the trends of research on Finnish teacher education reveals that we lack studies of nursery school teacher students and subject teacher students. Among the most interesting results are: 1) the issue of extraversion as one of the basic dimensions of teacher personality appears to have aroused interest in Finland, 2) student teacher groups do not differ from each other to a great extent as to their attitudes or personality, 3) the changes of attitudes during the study-period is not linear, but depends on several variables: context or personal, 4) there

are marks of a certain dissatisfaction towards the new system of teacher education.

The theoretical framework of the study consists of two basic concepts: study orientations and ideologies. The study has thus theoretical connections with both the sociology of knowledge and the psychologically oriented research on study orientation. A broad, phenomenologically oriented definion of the concept "ideology" is accepted, and it is concluded that we can empirically investigate study orientations as indicators of ideology with traditional, questionnaire-based methods. The dimensions of study orientations were deduced from Biggs' theory combined with the previous results of study orientations and social attitudes. A close connection between the trait-theoretical studies on personality and the investigations of study orientations by the Entwistle-group was noticed.

Figure 8 depicts the relationships between the concepts as here understood. Summary of the main concepts is shown on next page.

Figure 8. Summary of the main concepts of the study



Ideology: A broad construct covering values, norms, beliefs and knowledge, not necessarily bound to economic or political ideas. A system of thoughts, shared ideas (in this case, about learning and studying). Ideological views form the core of the motivational structure of personality.
(see Chapter 4.1.)

Personality: Is a phenomenon that emerges from the continuous dialectic between individual and society. Man is a social product. Identity is subjectively crystallized in the process of internalization, during the interaction with others. This crystallization is concurrent with the internalization of language.
(see Chapter 4.2.)

Study orientation: Reflections, indicators of ideologies. Study orientations are closely related to the whole stand towards the world and acquiring knowledge. Study orientations contain study styles and strategies, they are not stable but responses to particular circumstances.
(see Chapter 3.1.)

The contents of the following study orientations are described in detail in Chapter 3.4. : **Pragmatism:** University is means to another end, e.g. secure income. **Internality:** Self-growth as overall goal. **Achieving:** University a game to show excellence. **Reforming:** University a start for renewals.

Attitudes: The way of thinking and feeling about various objects, which predisposes the individual to behave selectively towards attitude referents, e.g. attitude statements in a questionnaire.

II EMPIRICAL PART

1. Design

1.1. Problems

The aims of teacher education at different levels of teaching in Finland were found to be quite similar in Chapter 1.2. The personality growth of a student towards a humanistic teacher, who is well-acquainted with the objectives of the official curriculum and who knows the sociopsychological laws of a teaching situation is set as an ideal. A teacher should have the ability for continuous self-growth and act in a flexible way in teaching. How to study this ethos?

Research on teacher characteristics has utilized several methods, and the present trend seems to stress the non-static, active and context-dependent nature of teachers. In addition to this, the research on teacher education has shown that the personality traits of teacher students, especially on the nursery and elementary school level, are similar to a great extent. Students are mostly extravert and dominant. Coherent information about the changes of attitudes or traits is hard to find.

The problems of the present study are raised from these results and from the extension of the Biggs' theory on study orientations (see page 60). Problem 1 relates to the specific teacher student groups of the study and is mainly descriptive. Sex and study-year are used as background variables to deepen the explanation.

Problems 2 and 3 aim at the empirical analysis of the theoretical model of study orientations that was developed in

Part I. The main interest is on the investigation of the structure of study orientations. Career choice motives and personality traits are primarily used as "background variables" to get more information about the essence of study orientations. The theoretical framework of Part I did not express any suggestions about the relationships between personality traits, career choice motives and study orientations.

Problem 4 relates to the products of studying.

1. What are the differences between the prospective teachers of nursery school, primary level of comprehensive school and upper level of comprehensive school as to their:
   - career choice motives
   - study experiences
   - study orientations
   - personality traits ?

2. What are the relationships between career choice motives, personality traits and study orientations ?

3. What is the structure of study orientations?

4. What is the connection of career choice motives, personality and study orientations to the study experiences?

1.2. Methods

The problems of the study relate mainly to basic research, where the central interest is in the relations among the variables of the study. In basic research generalizability to the population is not the first consideration, rather it is the functioning of the theoretical paradigm in use. The further specification of the connections between the variables play most important role in the study. (Kerlinger 1975, 324)

Student teachers of the study come from the University of Helsinki representing four different programs of teacher training, and the Institute of Nursery School Teachers in Helsinki. They do not represent the average students of the country because of the higher standard of application. The student teacher groups are compared to each other, but no attention is paid to the institutional or contextual differences between the groups. The data is population data, and generalizations to other students of the same field are not aimed at.

Data is gathered with questionnaires using a two-step procedure: 1) all the opportunities to meet students during the lectures and seminars are used, and 2) questionnaires are mailed to those students that are not met during the first attempt. (see Part II, Chapter 2.2. about the details of data gathering process)

The main interest lies in the domain of study orientations defined as indicators of a person's ideology. Personality, on the other hand, has close connections with the definition given to ideology in this study, and is operationalized with a modification of Cattell's trait-theory. (Niemi 1984 a and

b; see Part I, Chapter 2.3.). The variables of the study are listed in Table 3.

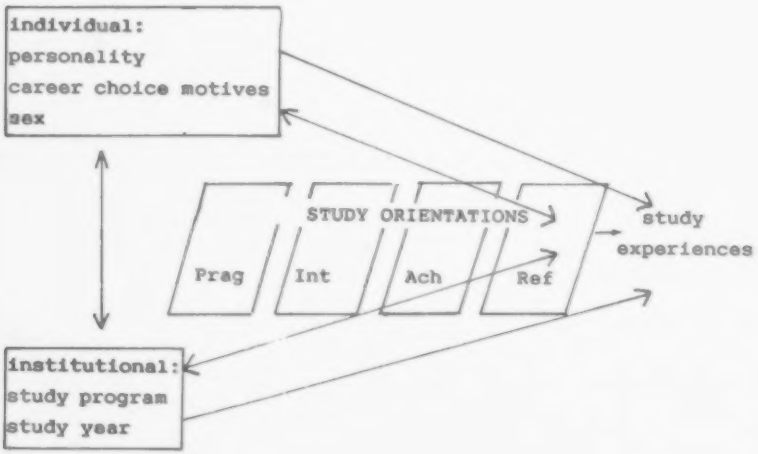
Table 3. The specification of the variables of the study

CONCEPTS	OPERATIONALIZATIONS
1. Career choice motives:	self-made items based on the study by Jussila (1976 and 1983)
2. Personality:	sub-dimensions of Niemi's personality test (Niemi 1984 a and b) (see footnote) - ego-strength vs. ego-weakness - unconcern for obligations vs. sense of duty - introversion vs. extraversion - balance vs. anxiety - conventionality vs. originality
3. Study orientations:	self-made questionnaire containing sub-scales: - pragmatism - internality - achieving - reforming
4. Study experiences:	items concerning success in studies, satisfaction over the training, relevance of the training, and relevance of the training to the image of a good teacher
5. Sex	
6. Study program	
7. Study year	

Note: The translation of the dimensions differs from that of Niemi (1985; for the original names, see Part I, Chapter 2.3.)

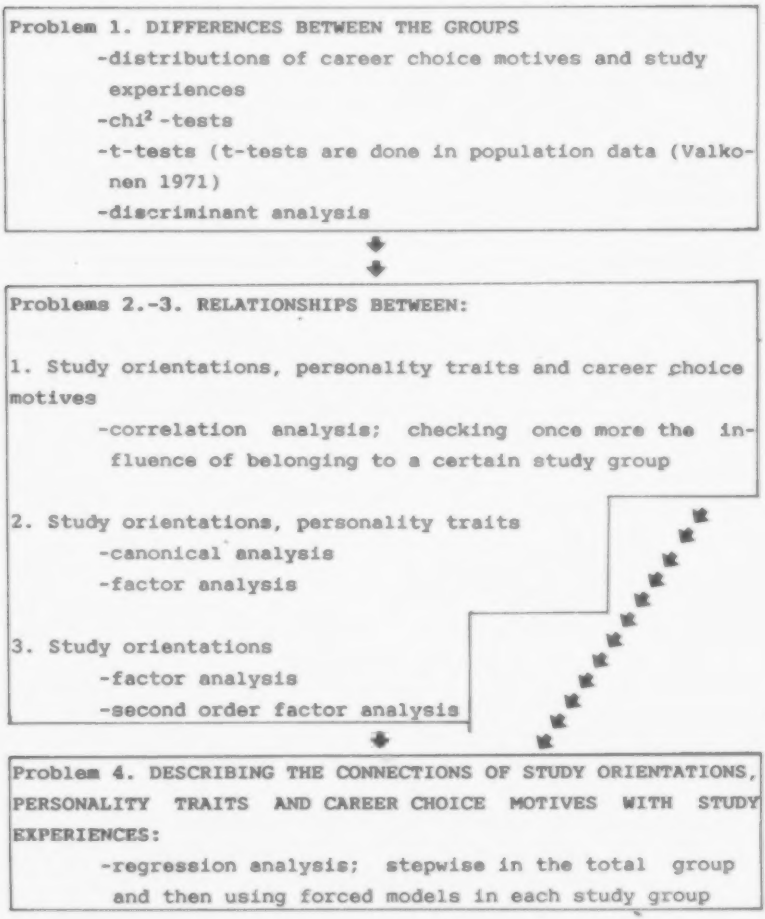
The interrelationships of the variables are depioted in figure 9.

Figure 9. The design of the study



1.3. Strategy

Figure 10 depicts the strategy of the study: the methods of analysing the data.


Problem 1. DIFFERENCES BETWEEN THE GROUPS
-distributions of career choice motives and study experiences
-chi² -tests
-t-tests (t-tests are done in population data (Valkonen 1971)
-discriminant analysis
Problems 2.-3. RELATIONSHIPS BETWEEN:
1. Study orientations, personality traits and career choice motives
-correlation analysis; checking once more the influence of belonging to a certain study group
2. Study orientations, personality traits
-canonical analysis
-factor analysis
3. Study orientations
-factor analysis
-second order factor analysis
Problem 4. DESCRIBING THE CONNECTIONS OF STUDY ORIENTATIONS, PERSONALITY TRAITS AND CAREER CHOICE MOTIVES WITH STUDY EXPERIENCES:
-regression analysis; stepwise in the total group and then using forced models in each study group

2. Data

2.1. Preparing the measuring instruments

2.1.1. Study orientations; reliability and validity

The questionnaire on study orientations was based on the theoretical model of Chapter 3.4. Values, motives and study strategies were operationalized by attitude - statements. The items, 70 altogether (see Appendix 1), were developed using the instruments of Entwistle (1981, 57-62), information about some of the items of Biggs (1979) and a value questionnaire of Puurula (1982). The items of the questionnaire belong to the different areas as follow:

PRAGMATISM:
- VALUES (30,33,42,59,64)
- MOTIVES (15,17,25,31,47,63)
- STRATEGIES (1,7,9,21,24,61,67,68)

INTERNALITY:
- VALUES (27,29,32,37,50)
- MOTIVES (2,12,19,28,45,54)
- STRATEGIES (3,6,22,43,48,49,70)

ACHIEVING:
- VALUES (4,14,16,55,60)
- MOTIVES (39,44,46,51,66,69)
- STRATEGIES (8,34,36,53,56,57)

REFORMING:
- VALUES (18,23,35,40,52)
- MOTIVES (5,20,26,58,65)
- STRATEGIES (10,11,13,38,41,62)

The futher inspection of the questionnaire was done by means of item-analysis and factor analysis. The reliabilities of the sub-scales (values, motives and strategies) were con-

sidered to be too low (varying from .34 to .81) which was obvious because of the circularity of the items: it is extremely difficult to create items purely on values or motives. The content of the items remain the same although the wording accentuates the difference. On the other hand, this was not the theme of the study, so it was decided to trust the scales of the four study orientations. The reliabilities of the four sum-scales are shown in Table 4.

Table 4. The reliabilities of the sum scales (Cronbach alpha)

		FINAL	
PRAGMATISM	.73	.74	(item 21 dropped out)
INTERNALITY	.71	.75	(items 22 and 70 --"--)
ACHIEVING	.74	.78	(items 16,57 and 60 --"--)
REFORMING	.75	.75	

The reliabilities can be considered to be satisfactory. The reliabilities of attitude-scales in general range from .50 to .80 and a reliability coefficient of .70 or above is usually considered respectable (Henerson et al. 1978, 153). The reliabilities of different subject groups were examined and are reported in Appendix 6. They vary from .32 to .88. The lowest sub-group reliability is on the scale of reforming of the 4th year home economics teacher students. The other two low reliabilities (.50) come from the same student group. On the average, the reliabilities of the various subgroups are respectable.

The intercorrelations between the scales ranged from .03 to varimax-rotation) gave some support to the four dimensional model of the area under study (Appendix 3). The percentage of explanation was, however, only 25%. Furthermore, two separate screes can be seen in the Cattell test (Appendix 5). This may indicate that the heterogeneous of the respon-

dent group causes extra variation.

Therefore, it was decided to use four factors of the six-factor solution and factor-scores calculated from these to give support to the interpretation of the logical sum-scales. Six factors explained 30.5% of the variance, and the four main scales of the theory appeared. The extra two factors gathered items on individual vs. group-learning and on stress (Appendix 4). Another analysis was done with oblique-rotation (SPSS- program) and the same factors appeared though the percentage of explanation was higher, 33%. (This analysis is explained in detail in Chapter 3.3.3. in connection with the more theoretical problem of higher-order factors of the instrument.)

The construct validity of the scales is thus considered to be satisfactory. Table 5 shows the intercorrelations of the factor score variables. The factors are extremely pure.

Table 5. Intercorrelations of the factor score variables of the study orientation factors

	1	2	3	4	5	6
1	1.00					
2	.01	1.00				
3	.00	-.03	1.00			
4	.00	.02	.01	1.00		
5	.04	.01	.01	-.01	1.00	
6	-.02	.06	.01	.02	-.02	1.00

2.1.2. The measure of personality; reliability and validity

The personality test of the questionnaire has been developed and studied by Hannele Niemi (1984a and 1984b). The results of her studies on subject teacher trainees were described in Chapter 2.3. The instrument has been found to be highly reliable and easy to demonstrate. The students of her

studies represent the same university and department as the present study, though a different program. The instrument is the latest Finnish questionnaire of personality and fits well with the aims of the present study. The basic premises of the instrument have close connections with the theoretical framework of this study.

The instrument is based on two basic premises: 1) to the model of the teaching situation by Koskenniemi (1978) and 2) to the modification of the trait-theoretical theory of personality by Cattell. In the former the teaching situation is considered to be a social interaction process, where the key elements are the understanding of the social structure of the group and the intentionality of a teacher. This sets specific demands on the personality of a teacher and five dimensions of the Cattell theory are considered to be most relevant as characteristics of a teacher: anxiety-integration, traditionalism - originality, ego-weakness - ego strength, introversion - extroversion, unconscientious - conscientious (Niemi 1985).

In the questionnaire the respondents are asked to rate several adjectives according to their self-image. The technique used resembles semantic differential. The instrument was examined with factor-analysis and item-analysis, and the dimensions are compared with those reported by Niemi. Factor-analysis (principal components, varimax-rotation; see Appendix 7) gives four factors that explain 44% of the total variance. A scree can be seen after four factors using the scree-test (Appendix 5). Five factors explain 45%, and the factors are almost identical in content to those reported earlier.

In this study the dimensions of personality are:

EGO STRENGTH - EGO WEAKNESS

corresponding to Niemi

- dominating - submissive +
- strong-willed - weak-willed +
- firm - uncertain +
- strong self-esteem - weak self-esteem +
- determined - irresolute +
- daring -frightened +
- courageous - shy
- unafraid of conflicts - beware of conflicts
- unafraid of criticism - afraid of criticism +
- dependent on the opinions of others - independent (-) +

UNCONCERN FOR OBLIGATIONS - CONSCIENTIOUSNESS

- careful - careless (-) +
- unpunctional - punctional +
- unconcern for obligations - conscientious +
- slovenly - precise +
- deliberate - rash (-) +
- practical - unpractical (-)

INTROVERSION - EXTRAVERSION

- detached - social +
- reserved - open +
- quiet - talkative +
- sad - happy +
- rigid - enthusiastic +
- cold - warm +
- active - withdrawing (-) +
- prefers to work alone - prefers to work in a group +

BALANCE - ANXIETY

- troubled - self-possessed (-) +
- restless - calm (-) +
- impatient - patient(-)
- balanced - anxious +
- feeling confident - missing for safety +
- optimistic - pessimistic

CONVENTIONALITY - ORIGINALITY

- adaptive - original +
- conventional - bohemian +
- liberal - conservative (-) +
- brave and enterprising - discreet (-) +
- fancing new ideas - following old traditions (-) +
- realist - idealist
- active - reflecting
- tough - sensitive

The reliabilities of the dimensions are listed in Table 6. They are considered to be good, though somewhat lower than in the reports of Niemi, where they range from .81 -.89.

Table 6. Reliability coefficients of the personality instrument

EGO STRENGTH - EGO WEAKNESS	.88
UNCONCERN FOR OBLIGATIONS - CONSCIENTIOUSNESS	.73
INTROVERSION - EXTRAVERSION	.82
BALANCE - ANXIETY	.77
CONVENTIONALITY - ORIGINALITY	.73

The highest correlation between the sum-scales is .48 (ego-strength and extraversion). Niemi reports an even higher correlation coefficient of .59 between these two dimensions (Niemi 1984a , 25). The traits are not independent of each other, but it is most reasonable to treat them as separate scales on the basis of their meaning.

2.1.3. The career choice items of the questionnaire

The career choice items were developed on the basis of some earlier Finnish studies on career choice motives, mainly Jussila (1976 and 1983). It was decided to make this part of the questionnaire as short and as easy as possible to fill in, because of the main interest on study orientations.

Nine motives were chosen and the respondents were asked to rate them from 1 to 7 according to their importance to them. The motives represent extrinsic, intrinsic and incidental motives (Jussila 1983, 33). On the basis of the correlation matrix in Table 7 it was decided to use the items seperate-

ly and not to make a sum-scale of them, though it might have been possible. The information that these career choice motives give is thus more detailed, but unfortunately, it was not possible to compute a reliability index.

Table 7. Correlation coefficients of the career choice motives

	71	72	73	74	75	76	77	78	79
71	1.00								
72	.48	1.00							
73	.13	.19	1.00						
74	.17	-.05	.00	1.00					
75	.06	.06	.07	.08	1.00				
76	.16	.02	.18	.27	.16	1.00			
77	.13	-.03	.05	.20	.01	.22	1.00		
78	.10	.10	-.00	-.02	.09	.02	.07	1.00	
79	-.17	.02	-.04	-.39	-.04	-.12	-.19	.16	1.00

Key: 71= good social status of a teacher,
72= security in making a living,
73= possibility of further education,
74= vocation,
75= possibility of good hobbies,
76= possibility of influencing,
77= previous working experience in teaching,
78= influence caused by family or friends,
79= by a mere coincidence

2.1.4. The operationalization of study experiences

There are four items in the questionnaire concerning students' study experiences. Respondents were asked to express their opinions on 1) their own study-success, 2) their satisfaction over the time spent in the institute, 3) how well the teaching in the institute has trained students for the demands of their prospective jobs and 4) how well the training had changed them into the ideal of a good teacher.

All the four items above give a subjective, experienced opinion on success in studies.

2.2. Data gathering

The data was gathered during April-May, 1984 with the questionnaire in Appendix 1 from the Institute of Teacher Training of the University of Helsinki and the Institute of Nursery School Teachers in Helsinki (Ebeneser). The first institute gives an academic degree in four different programs for comprehensive school teachers: elementary school teachers, subject teachers, instructors in home economics and textile handicraft. The studies in these four programs formally take 4 years and each year-course was included in this research.

As to the subject teacher students, only the first course is counted because the renewal of their study program is going on. For the same reason some subject teacher groups (music and art teacher students) are left out. The studies in the Institute of Nursery School Teachers last for three years at present and they lead to a nonacademic degree. The last two-year course was included in this study in addition to the first-year students.

A two-stage data-gathering strategy was used. On the first round data was drawn from talks, seminars and exercises. Several teachers of the institutes in question co-operated in this by allowing the researcher to use their teaching hours. The questionnaire was filled in group situations and it was preceded by a short, informal, oral instruction and reasons for the task. It followed the pattern "I'm doing research on the study styles of different kinds of teacher students. Would you be so kind and fill in this form for me. The results will be reported in about a year. Your identity will be kept totally secret and your personal opinions are not given to the teachers of this institute or any other

outsider."

The students were allowed to fill in the questionnaire in their free-time if they wished to do so, but only a minority of students did this. On the whole, the questionnaire was well-received, the respondents were eager to answer it and no critical questions were asked during the sessions. Some additional qualitative data was received by asking some of the groups to write down comments on their study experiences. This was done at the end of each session.

A total of 551 questionnaires were gathered with this method. A second stage of data-gathering was done by mailing questionnaires to those students that were not caught on the first round. The instruction in the letter can be seen in Appendix 2. About 270 forms were mailed, and 170 of these were returned filled in, which makes 23% of all received forms and 19% of the population.

A total of 721 students (81,5%) answered the questionnaire, only two of them were anonymous. Respondents of the subgroups are shown in Table 8.

The influence of the two different methods of data gathering is under further consideration in Table 9. There seems to be no indication of severe skewing of results.

Table 8. Numbers of students and respondents in the study

TEACHER EDUCATION STUDY PROGRAMME		STUDENTS	RESPOND.S.	%
1. nursery school	1st year	124	111	89,5%
2. nursery school	2nd year	125	116	92,8%
3. class teacher	1st year	80	69	86,3%
4. class teacher	2nd year	70	62	88,5%
5. class teacher	3rd year	73	62	84,9%
6. class teacher	4th year	75	51	68,0%
7. subject teacher, humanities		83	53	63,9%
8. subject teacher, sciences		38	24	63,2%
9. home econ.	1st year	29	24	82,8%
10. home econ.	2nd year	28	19	67,9%
11. home econ.	3rd year	28	22	78,5%
12. home econ.	4th year	29	23	79,3%
13. textile hand.	1st year	30	23	76,7%
14. textile hand.	2nd year	25	20	80,0%
15. textile hand.	3rd year	29	20	68,9%
16. textile hand.	4th year	28	22	78,6%
		885	721	81,5%

Table 9. The effect of different modes of answering the questionnaire.

		1	2	t	p
2001 Pragmatism	X	64.0	64.0	0.04	n.s
	s	12.1	12.7		
	N	312	169		
2002 Internality	X	64.7	64.4	-.35	n.s.
	s	10.8	10.3		
	N	317	169		
2004 Achieving	X	49.2	48.6	-.50	n.s.
	s	11.4	11.7		
	N	317	169		
2005 Reforming	X	69.7	68.2	-1.41	n.s.
	s	11.2	10.9		
	N	318	170		
2006 Ego	X	48.1	49.3	1.35	n.s.
	s	9.5	9.2		
	N	313	168		
2007 Sense of duty	X	19.0	18.6	-0.68	n.s.
	s	6.2	6.0		
	N	315	169		
2008 Introversion	X	23.5	24.6	1.51	n.s.
	s	7.1	7.7		
	N	317	169		
2009 Balance	X	29.7	30.0	0.45	n.s.
	s	5.97	5.6		
	N	317	169		
2010 Conventional.	X	30.5	31.2	1.18	n.s.
	s	6.6	6.8		
	N	319	170		

Key: 1 = students during the lectures, seminars etc.
2 = mailed questionnaires

3. Results

3.1. Descriptive analysis of the data

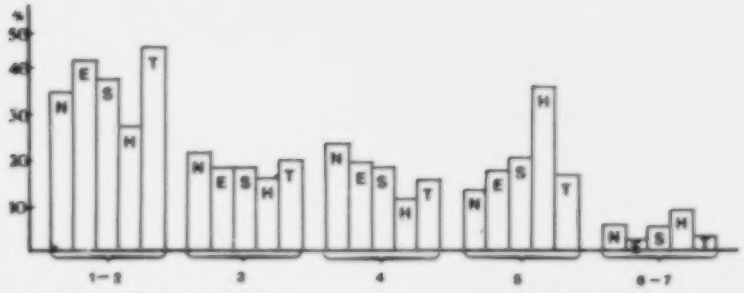
3.1.1. Distributions of career choice motives of different study programs

The career choice motives of the five student groups are depicted in Figure 11 (see also Appendix 9 for the distributions and chi^2-tests). The most interesting result is the great importance that the students place on internal career choice motives. The possibility of further education is valued high (49% of all students have scored 5 or more), career choice motive "vocation" by 67% of students scored 5 or more, 69% scored the career choice motive of "possibility of good hobbies" with 5 or more. External motives are not valued as high. For instance, the good social status of a teacher has not attracted students. Incidental career motives ("by a mere co-incidence", "influence caused by family or friends") are without almost any importance to the students in general. However, differences exist between the groups.

The differences between the five groups are studied with chi^2-tests. Home economics teacher students differ from the other groups because they value the good status of a teacher. The textile handicrafts students differ in another direction (64% of the students have scored 3 or less). The chi^2-test is significant.

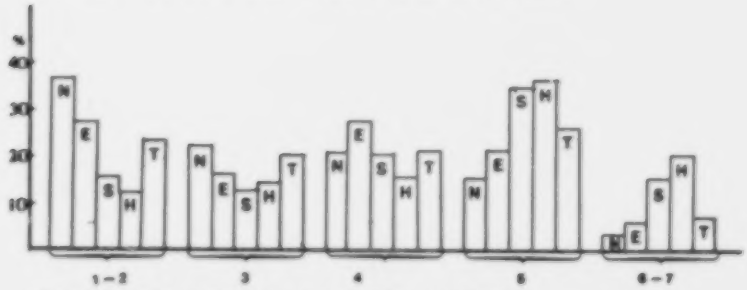
The career choice motive "security in making a living" also reveals significant differences between the groups. The nursery school teacher students value this motive less, and it is of great importance to the groups of subject, home economics and textile handicrafts students.

FIGURE 11. DISTRIBUTIONS OF CAREER CHOICE MOTIVES

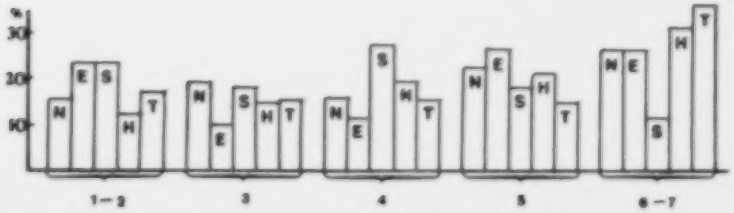


not at all important very important

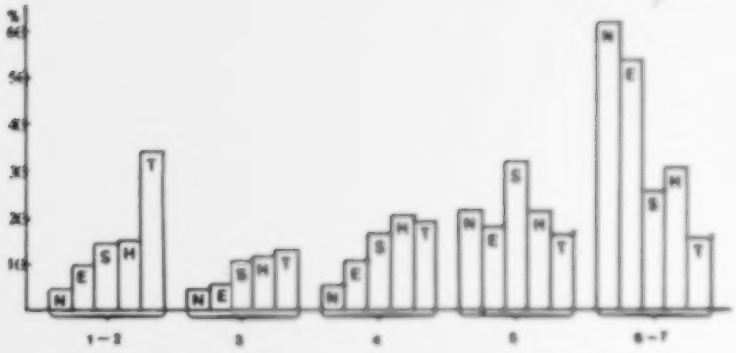
ITEM NO. 71: GOOD SOCIAL STATUS OF A TEACHER



ITEM NO. 72: SECURITY IN MAKING A LIVING

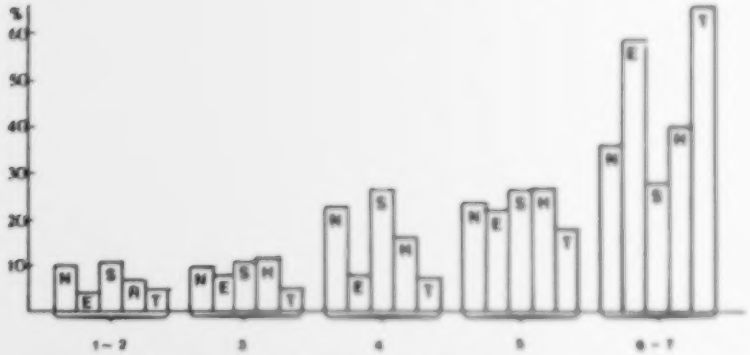


ITEM NO. 73: POSSIBILITY OF FURTHER EDUCATION

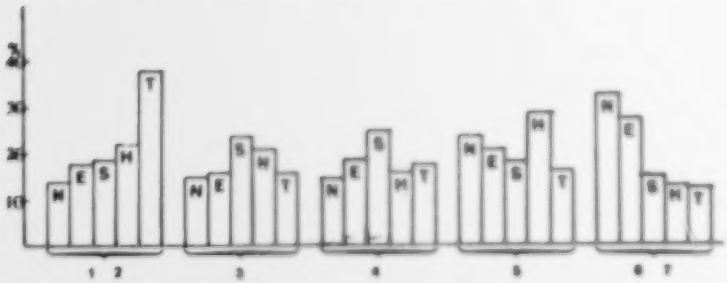


not at all important very important

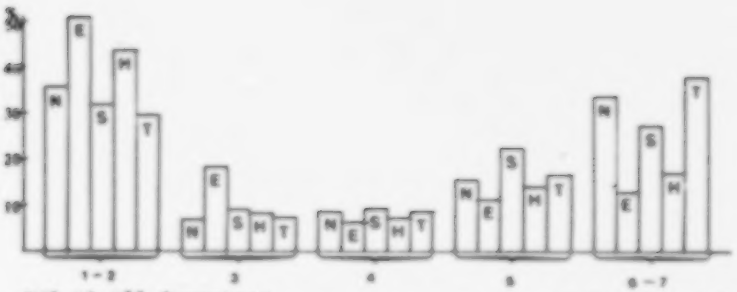
ITEM NO. 74: VOCATION



ITEM NO. 75: POSSIBILITY FOR GOOD HOBBIES

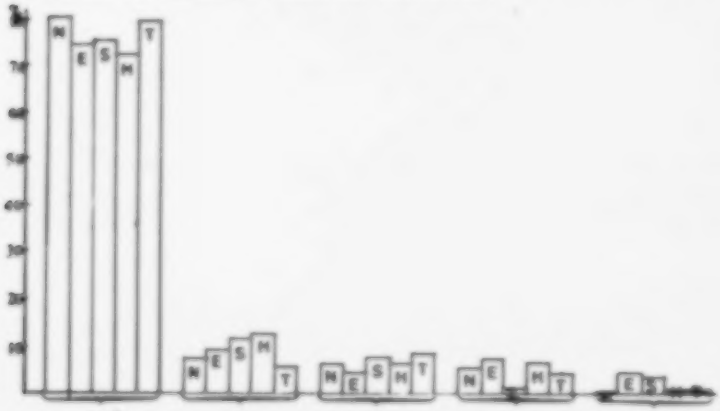


ITEM NO. 76: POSSIBILITY OF INFLUENCING

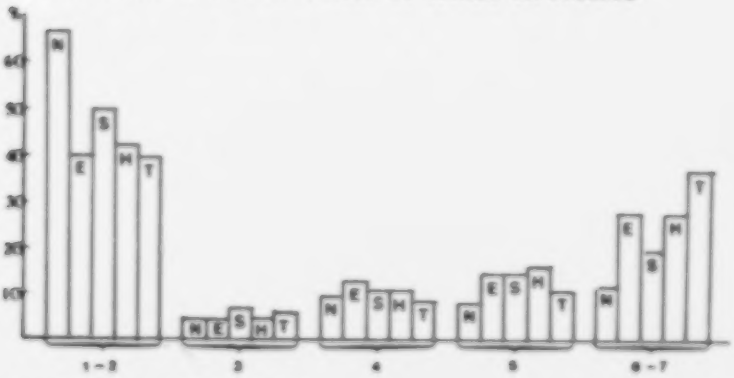


not at all important very important

ITLM NO. 77: PREVIOUS WORKING EXPERIENCE



ITEM NO. 78: INFLUENCE CAUSED BY FAMILY OR FRIENDS



ITEM NO: 79: COINCIDENCE

The possibility of further education has motivated all groups, but the chi^2 -test is still significant at the .01 level. The subject teacher students seem to be less motivated by this reason to study.

The career of a teacher as a vocation does not attract the students in the program of textile handicrafts teachers. On the contrary, nursery school teacher students and elementary school teacher students are alike in this respect: they value this motive. Chi^2 -test is significant.

The possibility of good hobbies is an important career choice motive to the nursery and elementary school teacher students, and also to the students in the textile handicrafts program. Chi^2 -test is significant.

The possibility of influencing as a career choice motive has attracted mainly the nursery and elementary school teacher students, but less the students of the textile handicrafts line. Chi^2 -test is significant.

Previous working experience has been a career choice motive of less importance to the groups of elementary and nursery school teacher students, but the distribution is bimodal. Chi^2 -test is significant.

It's interesting to see, that the career choice motive "by a mere coincidence" reveals significant differences between the groups. 45% of textile handicrafts teacher students, 46% of home economics teacher students and 42% of elementary school teacher students have announced that this motive has been an important career choice motive for them.

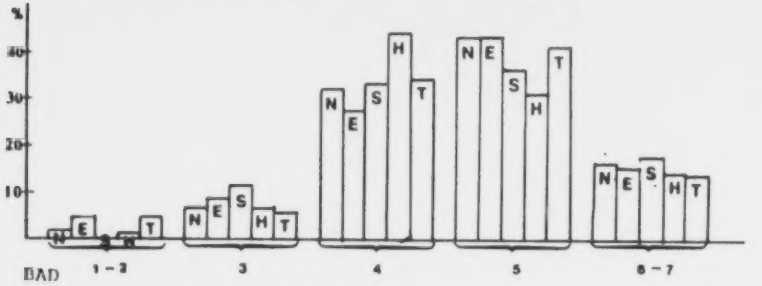
3.1.2. Distributions of measures of study experiences

The distributions of the self-expressed study satisfaction items are depicted in Figure 12. On the whole, the students seem to be quite satisfied with their study success in the institutes in question. The distribution of the item concerning the self-expressed success in studies is negatively skewed. Chi^2 - test is not significant, there are no important differences between the groups.

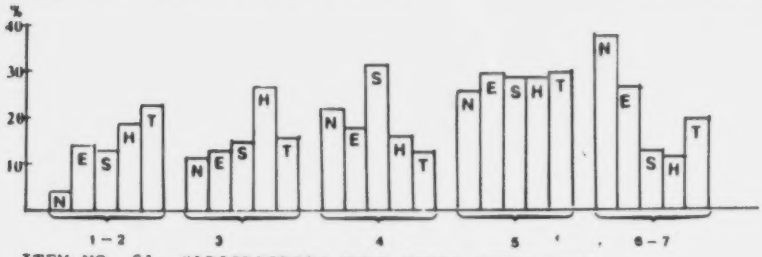
As to the satisfaction over one's study-time, the groups differ significantly from each other. The students of the programs of textile handicrafts and home economics seem to be most dissatisfied over their years in the institutes. 44% of home economics and 37.7% of textile handicraft teacher students have scored 3 or less.

The relevance of the studies to the demands of their future jobs is evaluated divergently in different institutes. As a whole the distribution is normal, but some of the students of the class teacher program seem to think that their studies have been irrelevant to their future jobs (43.9% scored 3 or less). The same applies to the next item: relevance of the studies to the image of a good teacher. 46.7% of class teacher students think that their teaching has not been efficient in this respect. 47% of textile handicrafts, 45.5% of subject and 48.8% of home economics teacher students think the same. The students of the nursery school teacher program are the most satisfied group.

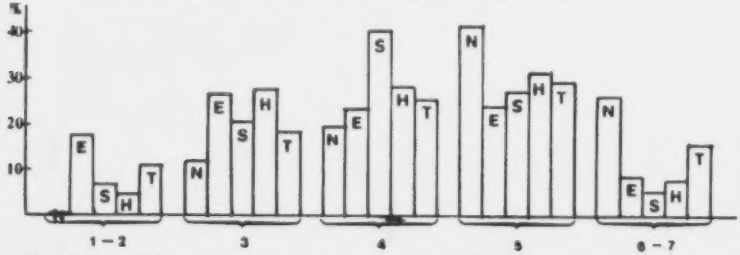
FIGURE 12. DISTRIBUTIONS OF STUDY EXPERIENCES



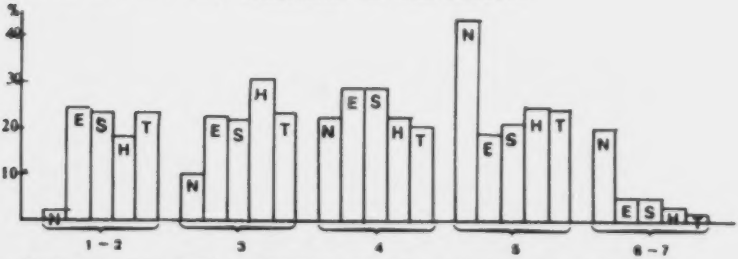
BAD ITLM. NO. 80: SUCCESS IN STUDIES EXCELLENT,



ITEM NO. 81: SATISFACTION OVER ONE'S STUDY TIME



ITEM NO. 82: THE RELEVANCE OF THE STUDIES



ITEM NO. 83: THE RELEVANCE OF THE STUDIES TO THE GOOD TEACHER IMAGE

3.2. Differences between the groups

Differences between the study-groups are analyzed first according to sex, and then according to study-programs. Last analysis is made with two different techniques: first t-tests and then discriminant analysis. (See Valkonen 1971, 108 about t-tests in population data)

3.2.1. Study orientations according to sex

Table 10 shows the means, deviations and t-values of the four study orientations. Only one of the t-values is statistically significant, pragmatism. Female students seem to feel more concern for practical values than male (t-value is significant at .01 level.) The t-value of differences between reforming-orientation is symptomatic: males being more reform-oriented. The capability of sex to account for the study orientations is, however, small. Sex explains 1.5% of pragmatism and less of other orientations.

Table 10. Study orientations and sex

	X		s		N			t	$100 \cdot r^2$
	F	M	F	M	F	M	T		
PRAGMATISM	64.1	60.1	12.1	11.3	593	111	704	-3.37	1.5%
INTERNALITY	66.3	64.8	10.7	10.7	602	111	713	-1.33	0.2%
ACHIEVING	49.5	48.8	10.8	12.0	601	112	713	-0.68	0.0%
REFORMING	69.9	71.8	11.1	12.4	601	114	715	1.62	0.4%

Range of scores: Pragmatism 18-126
Internality 16-112
Achieving 14-98
Reforming 16-112

3.2.2. Personality traits according to sex

There are some interesting differences in the means of the personality traits of the subjects (Table 11). Female students tend to feel more concern for obligations, to be more conventional and to be weaker as to their egos than male. All these differences are significant at .01 level. The difference of the means of anxiety is symptomatic: the males of this study are more balanced than the females. The percentages of explanations are, however, small. Sex accounts for the variance of sense of duty (unconcern for obligations-conscientiousness) 1.7%, and 1.4% for the variance of conventionality and 1.2% for ego-strength.

Table 11. Personality traits and sex

	X		s		N			t	$100 \cdot r^2$
	F	M	F	M	F	M	T		
EGO STRENGTH - EGO WEAKNESS	48.2	51.0	8.9	9.3	593	112	705	3.04*	1.2%
UNCONCERN FOR OBLIGATIONS - CONSCIENT.	18.7	20.9	5.9	6.8	595	115	710	3.46*	1.7%
INTROVERSION-EXTRAVERSION	23.1	24.2	6.9	7.3	599	114	713	1.57	0.4%
BALANCE-ANXIETY	29.9	30.99	5.7	5.6	594	115	709	1.84	0.5%
CONVENTIONAL.-ORIGINALITY	30.5	28.4	6.3	7.3	600	115	715	-3.14*	1.4%

3.2.3. Differences of study orientations according to study program

The differences of the students are examined in different year courses in each institute. It is stressed that the development of personality or study orientations cannot be traced using a cross section method. Instead, we get information about the equality of the cohorts.

In addition to the t-tests of the sum-scales, also the four factor- variables are reported here in order to validate the results (see Part II, Chapter 2.1.1).

3.2.3.1. Pragmatism-orientation

There is an interesting difference between the groups in the pragmatism scale. The students of the textile handicrafts teacher program are the most pragmatism-oriented group of the five, and the subject and elementary school teacher students the less. T-tests of the means of sum-scales between the five student-groups are reported in Table 13. There are no significant differences between the nursery school, elementary school and subject teacher students, but the means of textile handicrafts teacher students differ significantly from those of the nursery and elementary teacher students. At best, only 2.8% of the variance of pragmatism is accounted for by study programs.

The prospective teachers of home economics and textile handicrafts use the most pragmatic study style in their studies. The longer they have studied, the stronger the inclination to be pragmatically oriented appears to be. On the other hand, the means of pragmatism of prospective teachers

Table 12. The means and deviations of pragmatism-scale according to study-years in different study programs

study year / study program		1	2	3	4	all
NURSERY SCHOOL TEACHER STUDENTS	X	63.5	61.9			62.7
	s	11.2	11.5			11.3
	N	110	112			222
ELEMENTARY CLASS TEACHER STUDENTS	X	62.9	62.1	64.2	60.3	62.5
	s	13.9	13.0	14.3	9.4	13.0
	N	67	60	61	49	237
SUBJECT TEACHER STUDENTS	X	62.9				62.9
	s	10.7				10.7
	N	75				75
HOME ECONOMICS TEACHER STUDENTS	X	64.0	65.5	67.5	67.0	66.0
	s	11.5	8.0	12.7	11.7	11.1
	N	24	19	22	23	88
TEXTILE HANDICRAFTS TEACHER STUDENTS	X	66.1	65.7	69.7	68.2	67.4
	s	13.1	11.5	11.1	14.4	12.5
	N	21	20	20	21	82

Table 13. T-tests of the means of pragmatism

study prog.	1	ω^2	2	ω^2	3	ω^2	4
2	-0.18 457						
3	0.14 295		0.25 310				
4	2.30* 308	1.3%	2.23* 323	1.2%	1.78 161		
5	3.12* 302	2.8%	2.98* 317	2.4%	2.41* 155	2.4%	0.79 168

of nursery school and elementary school tend to go in another direction. The students of the second and the fourth year are less pragmatic than the first-year students. The significance of these differences between cohorts is not tested, because they are considered to be minor.

Table 14 shows the means of the factor-scores corresponding to the logical sum-scale of pragmatism. The conclusions of the above analysis apply to this table: subject teacher students and elementary school teacher students are the less pragmatically oriented groups and textile handicrafts students the most.

Table 14. Means of factor-scores of pragmatism

study program	N	E	S	H	T
M	516.2	489.2	450.5	501.5	530.8
d	93.1	100.2	100.3	92.2	105.8
N	227	244	77	88	85

KEY: N= Nursery school teacher students,
E= Elementary school teacher students,
S= Subject teacher students,
H= Home economics teacher students,
T= Textile handicrafts teacher students

3.2.3.2. Internality-orientation

The means and deviations of the internality sum-scale are shown in Table 15. The differences between the groups are highly significant. The students of the nursery school teacher education program have scored high in this dimension, and subject and textile handicrafts teacher students

are at the opposite pole. Less than 5% of the variance of internality is accounted for by the study-program.

Table 15 also shows the differences between cohorts in each study group. No consistent, linear development is noticeable, and the differences are so small that significance-tests are not worth computing.

Table 15. The means and deviations of internality-scale according to study-years in different study programs

study year		1	2	3	4	all
NURSERY SCHOOL	X	69.2	69.4			69.3
TEACHER STUDENTS	s	11.0	9.9			10.4
	N	110	116			226
ELEMENTARY SCHOOL	X	65.3	67.2	65.5	63.0	65.4
TEACHER STUDENTS	s	10.4	10.0	9.9	11.3	10.4
	N	68	62	60	49	239
SUBJECT TEACHER	X	63.8				63.8
STUDENTS	s	9.8				9.8
	N	76				76
HOME ECONOMICS	X	67.8	60.5	65.6	61.7	64.1
TEACHER STUDENTS	s	12.1	10.5	10.5	8.5	10.7
	N	24	19	22	23	88
TEXTILE HANDICRAFTS	X	61.2	63.6	61.9	68.1	63.7
TEACHER STUDENTS	s	11.1	10.6	13.1	11.0	11.6
	N	22	20	20	22	84

Table 16. t-tests of the means of internality sum-scale

	1	ω^2	2	3	4
2	-4.08**	3.3%			
	463				
3	-4.08**	4.9%	-1.2		
	300		313		
4	-3.97**	4.5%	-1.00	0.19	
	312		325	162	
5	-4.06**	4.8%	-1.21	-0.01	-0.19
	308		321	158	170

Table 17 shows the factor-score means of the internality-scale.The means follow well the trend of the above table. The nursery school teacher students are distinctively different from the other student groups. They value self-growth, extra reading and continuous studying (of educational matters), which does not seem to attract the students of the textile handicrafts teacher program and future subject teachers.

Table 17. Means of internality factor-scores of the five teacher student groups

	Nurs. sch.	Elem. sch.	Subj.	Home econ.	Text. hand.
M	548.5	483.1	476.7	479.5	461.1
s	90.7	99.3	92.2	87.0	99.4
N	227	244	77	88	85

3.2.3.3. Achieving-orientation

Table 18 gathers the means of the achievement sum-scale and Table 20 the means of achievement factor-scores. In both tables, the students of subject teacher program seem to be most achievement- oriented, but the t-tests between the groups are are not significant (in Table 19).

When comparing the means and devistions between the cohorts, we may notice that achievement-scores get smaller towards the end of the studies. It seems to be more important to students to compete with other students in the beginning of the studies. The students get to know each other, the solidarity between them grows, and they don't value competing during the final years. The other explanation might be that the grades of the students are by large already determined at the end of his/her studies, so there is no more meaning in achieving-orientation.

Table 18. The means and deviations of achievement-scale according to study years in different study programmes

study year / study program		1	2	3	4	all
NURSERY SCHOOL	X	51.9	48.9			50.4
TEACHER STUDENTS	s	9.3	9.9			9.7
	N	111	115			226
ELEMENTARY SCHOOL	X	51.7	46.4	47.2	47.1	48.2
TEACHER STUDENTS	s	11.4	12.3	10.8	11.0	11.5
	N	67	60	62	50	239
SUBJECT TEACHER	X	51.6				51.6
STUDENTS	s	12.1				12.1
	N	77				77
HOME ECONOMICS	X	50.8	42.7	50.9	48.3	48.4
TEACHER STUDENTS	s	11.8	7.3	10.7	11.8	11.0
	N	24	19	22	22	87
TEXTILE HANDICRAFTS	X	53.3	49.3	49.1	45.1	49.3
TEACHER STUDETS	s	8.9	10.6	10.2	13.8	11.2
	N	23	20	20	21	84

Table 19. t-tests of the means of achieving

	1	2	3	4
2	-2.14* 463			
3	0.93 301	2.21* 314		
4	-1.54 311	0.12 324	-1.79 162	
5	-0.83 308	0.72 321	-1.28 159	0.51 169

Table 20. Means and deviations of the achievement factor-scores of five teacher student groups

	Nurs. sch.	Elem. sch.	Subj.	Home econ.	Text. hand.
M	488.5	499.6	537.9	499.0	498.5
s	88.2	104.5	113.9	98.3	98.9
N	227	244	77	88	85

3.2.3.4. Reforming-orientation

The students of the nursery and elementary school teacher programs are the most reform-oriented of the groups. The students of the home economics teacher program are less reform-oriented. Differences between the means are significant (Table 21). The study program accounts for 6.5% of the variance between future nursery school and home economics teachers, 4.1% of variance between future nursery school and textile handicrafts teachers and 3.5% between the former and subject teacher students.

However, the means of the factor-scores do not agree with

this, which reveals a lack of validity of the scale. When the influence of stress and preferred study method (group vs. individual) is eliminated from the reform-scale, the students of the nursery school teacher program are the least reform-oriented group. The factor of reforming has gathered items that leave out the more profound values of the original scale, e.g. liberal ideas in teaching or advancing equality. The content of the factor is thus rather narrow. It concentrates on the criticism and renewal of the prevalent teaching system - the students of the elementary school teacher program being the most eager group in this respect. There's no need to change the name of either the original sum-scale or the factor-variable, they both measure reforming orientation- but with a stress on different things. The original sum-scale is considered to be more relevant.

The comparison of means and deviations between cohorts reveals no consistent development. Students of the elementary school and home economics programs tend to be less reform-oriented at the end of their studies, and nursery school and textile handicrafts students grow more reform-oriented. The change is not linear and it is so small that t-tests are not computed.

Table 21. The means and deviations of reforming-scale according to study years in different study programmes

study program \ study year		1	2	3	4	all
NURSERY SCHOOL	X	71.5	73.5			72.5
TEACHER STUDENTS	σ	10.3	12.2			11.3
	N	111	114			225
ELEMENTARY SCHOOL	X	71.1	73.6	71.2	69.8	71.5
TEACHER STUDENTS	σ	10.8	11.7	11.6	12.2	11.5
	N	68	62	62	50	242
SUBJECT	X	67.5				67.5
TEACHER STUDENTS	σ	10.2				10.2
	N	77				77
HOME ECONOMICS	X	65.8	69.5	65.7	63.8	66.1
TEACHER STUDENTS	σ	8.7	9.9	10.2	7.7	9.2
	N	23	19	22	23	87
TEXTILE HANDICR.	X	65.3	64.9	66.8	71.2	67.0
TEACHER STUDENTS	σ	10.0	11.5	11.3	12.1	11.3
	N	23	20	20	21	84

Table 22. t-tests of the means of reforming

	1	ω^2	2	ω^2	3	4
2	-0.98					
	465					
3	-3.47**	3.5%	-2.74**	2.0%		
	300		317			
4	-4.74**	6.5%	-3.95**	4.2%	-0.91	
	310		327		162	
5	-3.78**	4.1%	-3.06**	2.5%	-0.25	0.61
	307		324		159	161

Table 23. Means of reforming factor-scores of the five teacher student groups

	Nurs. sch.	Elem. sch.	Subj.	Home econ.	Text. hand.
M	464.0	540.3	496.2	474.4	510.5
σ	96.4	98.9	88.0	85.6	93.7
N	227	244	77	88	85

3.2.4. Differences of personality traits according to study programs

The differences of personality traits are analyzed without tracing the changes between cohorts. The decision was made because personality traits are of a second-order interest as compared to study orientations. The means and deviations of each cohort of the study-groups are, however, reported in Appendix 10.

The means and deviations of personality traits can be seen in Table 24. T-tests of the means are reported in Table 25. The elementary school teacher students seem to have strong egos while the subject teacher students have the weakest. The difference is highly significant, but only 3.3% of the variance is accounted for by student group. The students of the home economics teacher program tend to have weak egos, too.

The nursery school teacher students have scored high on the measure of sense of duty; only reversed in the other direction indicating that they feel less concern for obligations than others, especially the students of textile handicrafts. Differences between the groups are not significant, however.

The students of the subject teacher program seem to have the most introvert personalities and the students of elementary and nursery school teacher programs the most extravert. Differences between the means are highly significant. More than 8% of the variance of introversion vs. extraversion is accounted for by belonging to either nursery or subject teacher groups. The textile handicrafts and home economics students are introvert personalities as a group, too.

As to the personality trait of balance, the students of the nursery and elementary school teacher programs are the most balanced and the students of home economics the most anxious group. These differences between the means are significant.

The most striking differences between the groups appear in the measure of conventionality-originality. The students of home economics are the most conventional, the students in the nursery school teacher programs the most original and liberal. It's worth remembering that the students in these study-program are mostly females, and in other programs the influence of sex is integrated with the variable in question.

Table 24. Personality traits and study program

		Nurs.	Elem.	Subj.	Home	Text.
EGO STRENGTH-EGO WEAKNESS	X	48.9	50.1	45.8	46.9	48.1
	σ	8.2	9.3	8.9	8.4	9.99
	N	223	239	75	87	81
UNCONCERN FOR OBLIGATIONS - CONSCIENT.	X	19.5	19.3	19.3	18.1	18.0
	σ	6.2	6.4	5.9	5.4	6.0
	N	225	241	73	86	85
INTROVERSION-EXTRAVERSION	X	22.1	22.2	26.7	25.1	24.9
	σ	6.1	6.8	7.7	6.6	7.9
	N	226	241	74	87	85
BALANCE-ANXIETY	X	30.7	30.7	29.1	28.1	29.7
	σ	5.2	5.7	5.6	5.9	6.2
	N	222	242	74	87	84
CONVENTIONAL.-ORIGINALITY	X	28.9	30.1	30.5	33.6	29.9
	σ	6.2	6.8	6.4	6.0	6.4
	N	225	242	75	88	85

Table 25. T-tests of the means of personality traits of different student groups

		N	ω^2	E	ω^2	S	ω^2	H	ω^2
EGO STR. VS. EGO WEAKNESS	Elem.	1.44 460							
	Subj.	-2.71** 296	2.1%	-3.45** 312	3.3%				
	Home	-1.85 308		-2.73** 324	1.9%	0.81 160			
	Text	-0.67 302		-1.59 318		1.50 154		0.83 166	
UNCONCERN FOR OBLIGATIONS VS. CONSCIENT.	E	-0.20 464							
	S	-0.16 296		-0.02 312					
	H	-1.73 309		-1.55 325		-1.31 157			
	T	-1.85 308		-1.68 324		-1.38 156		-0.16 169	
INTROVERS. VS. EXTRAVERS.	E	0.28 465							
	S	5.35** 298	8.4%	4.81** 313	6.5%				
	H	3.87** 311	4.3%	3.40** 326	3.1%	-1.45 159			
	T	3.36** 309	3.2%	2.97** 324	2.3%	-1.47 157		-0.18 170	
BALANCE VS. ANXIETY	E	-0.10 462							
	S	-2.28* 294		-2.09* 314					
	H	-3.90** 307	4.4%	-3.65** 327	3.6%	-1.15 159			
	T	-1.46 304		-1.33 324		0.63 156		1.77 169	
CONVENTIONAL. ORIGINALITY	E	1.98 465							
	S	2.00* 298		0.53 315					
	H	6.07** 311	10.3%	4.24** 328	4.9%	3.09** 161	5%		
	T	1.31 308		-0.18 325		-0.61 158		-3.85** 171	7.4%

3.2.5. Discriminant analysis of the groups

To sum up the results from Chapters 3.2.3. and 3.2.4. a discriminant analysis was made. It has the advantage of analyzing all the variables at the same time. "The discriminant model may be interpreted as a special type of factor analysis that extracts orthogonal factors of the measurement battery for the specific task of displaying and capitalizing upon differences among criterion groups." (Cooley & Lohnes 1971, 243).

Discriminant analysis is used 1) to interpret the differencies between the groups, to find out how well some set of characteristics discriminate the groups and which characteristics are the most powerful discriminators, and 2) to classify cases into groups (Klecka 1980, 8-9). The first one of these tasks fits Problem 1 of this study. The mathematical assumptions of discriminant analysis are stated thus (Klecka 1980, 11):

" 1) two or more groups

2) at least two cases per group

3) any number of discriminating variables, provided it is less than the total number of cases minus two

4) discriminating variables are measured at the interval level

5) no discriminating variable may be a linear combination of other discriminating variables

6) the covariance matrices for each group must be approximately equal, unless special formulas are used

7) each group has been drawn from a population with a multivariate normal distribution on the discriminating variables."

The points 1-5 are satisfied with this data. Point 6 is

tested by the F-test, which gave F(188,∞)=1.03, n.s. The matrices are equal and a linear model can be utilized. The analysis was computed with the HYLPS-program (HYLPS 1975). The best variables to discriminate the groups from each other are introversion-extraversion, conventionality-originality, balance-anxiety, internality, pragmatism and achieving. In all of these the step-down F-values for their additional discriminating power are significant at .001 level. Table 26 shows the discriminators. The F-values in the table tell how well the set of variables discriminate between the groups. The information led to the decision to take all the variables for further analysis.

Table 26. The discriminators and their potency

	F	df	p
INTROVERSION-EXTRAVERSION	11.1	4,716	.001
CONVENTIONALITY-ORIGINALITY	9.2	8,1430	.001
BALANCE-ANXIETY	8.3	12,1889	.001
INTERNALITY	7.4	16,2178	.001
PRAGMATISM	6.6	20,2362	.001
ACHIEVING	6.1	24,2481	.001
EGO STRENGTH-EGO WEAKNESS	5.7	28,2561	.001
REFORMING	5.3	32,2616	.001
UNCONCERN FOR OBLICATIONS-CONSCIENT.	4.8	36,2654	.001

The assumption 7 is problematic, however. A multivariate normal distribution exists when each variable has a normal distribution of fixed values on all the others (Klecka 1980, 10). The groups in this study are highly selective, they have been chosen for their studies through entrance exams that stress e.g. extraversion (see Part I, Chapter 2.2.). We may doubt the normality of the variables. Furthermore, this assumption is important for tests of significance - which, as we have pointed out, are questionable in the cases of

population data.

Klecka (1980, 60-62) considers discriminant analysis to be a rather robust technique, which can tolerate some deviation from the above mathematical assumptions. The problem is more severe with small samples, and he advises to ignore with large samples the tests of significance or to interpret them "conservatively".

Table 27 reports the results of the disriminant analysis. The interpretation of the functions is done by structure coefficients (=correlations of the variables with the functions). Two discriminant functions with chi^2-values significant at .001 level and two functions significant at .01 level appear. The first discriminant function contains 55% of the total disriminating power in this model. It is created by the sum-variables "reform-orientation", "introversion-extraversion", "conventionality-originality", "internality" and "balance-anxiety". It is most interesting to see, that the dominant variable in this function is reform-orientation, which is not among the best discriminators (Table 28). In this function the mean of the students of the home economics program is the highest and the mean of the nursery school teacher students the lowest.

The second discriminant function gathers sum-variables achieving, extraversion-introversion and ego strength-ego weakness. The second function explains 19.1% of the variance. There is no rule to state how large the relative percentage must be before the function is of interest (Klecka 1980, 36). We may doubt the discriminating power of the second function, but a further examination is needed to judge this. Klecka stresses the difference between statistical and substantive significances. The latter means the ability of a research finding to have meaning in explaining

Table 27. Discriminant functions of study orientations and personality

discr. functions	I		II		III		IV	
	s	r	s	r	s	r	s	r
Introver.-Extrav.	.48	.58	-.40	-.62	-.22	-.07	.22	.13
Conv.-Original.	.43	.55	.55	.28	.76	.37	.43	.20
Balance-Anxiety	-.57	-.45	-.07	.13	-.36	-.25	.02	.04
Internality	-.13	-.51	-.01	-.05	.81	.48	-.84	-.47
Pragmatism	.28	.33	.29	.00	-.46	-.21	-.72	-.54
Achieving	-.29	-.07	-.73	-.48	.08	.13	-.50	-.08
Ego strenght-E.w.	.29	-.30	.43	.50	-.40	-.25	.14	.06
Reforming	-.21	-.63	.21	.22	-.01	.10	.70	.10
Unconc.f.oblig.	-.20	-.22	-.03	-.06	.24	.10	.21	.28
chi	91.4		33.1		25.3		19.3	
df	12		10		8		6	
p	.001		.001		.01		.01	
Rc	.35		.21		.19		.16	
percent. of expl.	55%		19.1%		14.6%		11.1%	

r= correlation with variables
s= scaled coefficient

Table 28. Means and deviations of the student groups in the four functions of the discriminant analysis (normalized)

Functions	I		II		III		IV	
	M	d	M	d	M	d	M	d
Nursery sch.	-.38	.94	-.08	.92	.13	.97	-.12	1.02
Elem. sch.	-.12	1.00	.20	1.02	-.10	1.04	.15	1.01
Subject t.	.27	1.01	-.51	1.15	.02	.97	.25	.92
Home ec.	.73	.96	.19	.94	.29	1.02	-.07	.96
Textile hand.	.34	1.19	-.08	1.04	-.38	.97	-.26	1.03

the phenomenon in question (1980, 67). The highest mean in this function is that of the elementary school teacher students and the lowest one that of subject teacher students.

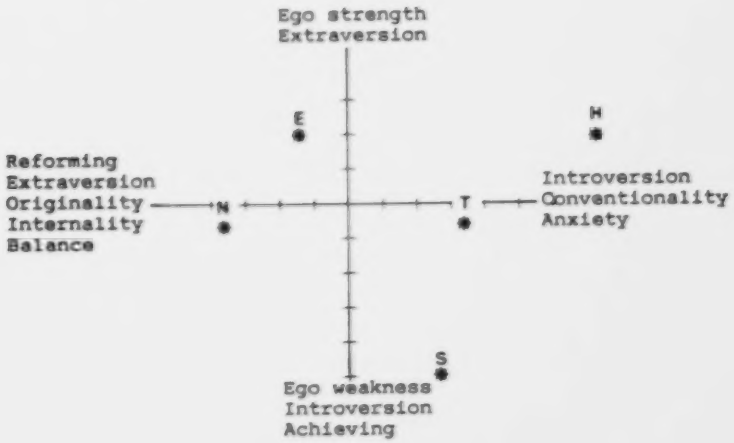
The canonical correlation of the first discriminant function is low (.35), which indicates that the variables of the function do not have a strong relationship with each other. The fact that the functions overlap with each other is also to be seen in the coefficients of introversion and conventionality. Both of them correlate with the first two discriminant functions which make the interpretation of the functions difficult. The third canonical correlation is .19 and the fourth one .16. The functions are weak in their potency to discriminate the groups and the third and fourth functions are left without an interpretation in spite of the fact that the third function explains 14.6% and the fourth one 11.1% of total variance.

The groups are depicted in figure 13 in the co-ordinate of the first two discriminant functions. It recapitulates the interpretation of Chapters 3.2.3. and 3.2.4. about the similarity of the nursery and elementary school teacher students. Subject teacher students differ from the others as to their tendency to be achieving-oriented. Students in the program of home economics are most anxious, conventional, introvert personalities.

In spite of the fact, that the groups are very similar to each other, it was possible to create a two-dimensional model of the differences between the groups. The utilization of discriminant analysis cleared up the results of t-tests from the preceding chapters and expressed briefly the main findings. Klecka (1980, 63) lists several problems, which may have a negative effect upon the interpretation of discriminant functions: grossly different group sizes and

highly correlated variables are here the most relevant of these. Whether the results about the similarity of nursery and elementary school teacher students reflect the fact that these groups together form two thirds of the subjects, is doubtful, because we are dealing with standardized group means. The second point, the correlations between the variables, is true here, and is to be seen as the main reason for the difficulties in interpreting the functions.

Figure 13. The positions of the student groups in the first two discriminant functions



3.3. Relationships between study orientations, personality traits and career choice motives

The relationships between study orientations, personality traits and career choice motives are studied first through correlation analysis and then the connections of study orientations and personality traits through canonical factors and factor analysis. Finally the domain of study orientations is analyzed by means of a second-order factor analysis.

3.3.1. Relationships between personality, study orientation and career motivation

The second problem concerned the connections of all three main variables. This is investigated using a rough tabulation of correlation coefficients of the total subject group and then centralizing the means and calculating correlations once again in order to diminish the variation between the groups. Table 29 shows the intercorrelations (>.13) between personality traits, study orientations and career motivations in the total group.

These correlations provide useful information about the relationships between the variables. Only the most obvious connections are picked up for commenting on here. The career motive "good social status of a teacher" is linked to the personality trait "sense of duty" and to study orientations stressing pragmatism (r=.37) and achieving orientations. The career choice motive "security in making a living" has significant correlations with the same scales. The financial security and material values in life are common elements in all of these.

Table 29. Correlations between the variables.

	71	72	73	74	75	76	77	78	79	P	I	A	R	E	U	I	B	C
71																		
72	48																	
73	13	19																
74	17																	
75																		
76	16		18	27	16													
77				20		22												
78	13																	
79	-17			-39			-19	16										
P	37	34							-15									
I	13		46	24	14	37	18		-15									
A	30	19	16					14	-15	46	34							
R			14	27	19	46	17				55							
E			17			17	15		-14	27		27						
U	-14					14		23	-33		-36	20						
In			-19		-19	-17				-25		-41	-48					
B			15					-19		13			32	-34	-15			
C						-28				24	-24	20	-41	-13	-43	14	19	

(r>.09*, r>.13**)

71=good soc. stat. of a teach. 72=secur. in making a living,
73=possib. of further educ,, 74=vocation,
75=possib. of good hobbies, 76=possibility of influencing,
77=previous exper. in teach. 78=influence caused by family,
79=coincidence, P=Pragmatism
I=Internality, A=Achieving,
R=Reforming, E=Ego strength,
U=Unconcern for obligations, In=Introversion,
B=Balance, C=Conventionality

Table 30. Comparison of the preliminary matrix and centralized matrix correlation coefficients. Coefficients where the change is >4 are reported. (decimal points omitted)

	74		75		76		77	
	r	r	r	r	r	r	r	r
74	100	100						
76	27	21			100	100		
77	20	10					100	100
79							-19	-13
I	24	19					18	11
R	27	21					17	12
In	-19	-13					-17	-12

Key: see Table 29.

The career choice motive "possibility of further education" has correlated with the personality trait of "ego strength" and study orientations "internality" (r=.46), "achieving" and "reforming". Because the dimension of internality is composed of items like "My own mental growth is important to me" or "I want to develop my own philosophy of life", and on the other hand, the personality trait of ego strength is operationalized with items like "dominating", "independent", "strong-willed" we get a picture of a determined person who values self-actualization and the internal growth of his/her own personality.

The career choice motive "possibility of influencing" has correlated with reforming (r=.46) and internality (r=.37). The personality traits have several interesting correlations with this motive: conventionality (r=.-28), extroversion, ego strength and unconcern for obligations. This gives a picture of an extrovert student who aims at renewals and reformations, and therefore seeks new information about education.

"Vocation" as a career choice motive has a strong negative correlation with coincidental studying in the institute. This relationship is understandable and adds to the reliability of the measure. The study-orientations of internality and reforming correlate with these motives, too. Personality traits "extraversion" and "balance" are connected with the same group of variables. A deep personal conviction to become a teacher characterizes this group of variables.

Correlation coefficients do not allow for causal explanations of the data. The presage and process variables are therefore kept together - one may have influence on another or vice versa. In spite of this, it was possible to describe some of the linkages of career choice motives, study orien-

tations and personality traits. A final point should be made here about the manner of describing the most interesting connections. The personification of connections is not by any means a correct way of making the analysis, but anyhow, it is exhaustive and illustrative.

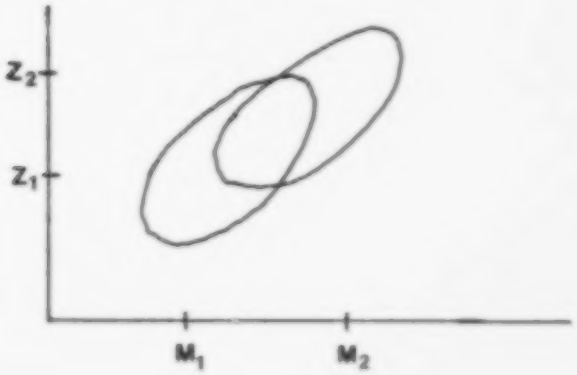
Table 30 shows the comparison of correlations calculated from a matrix where the means of the groups are transformed to 500 and the deviations are left untouched (this procedure might be called "half-way standardization"). The deviations of each group as such remain the same, but the total deviations, and accordingly, correlations change after the new mean. The advantage of the procedure is that the differences between the group means are eliminated.

To compare correlation coefficients from different samples or sub-groups of the data, is risky. The more homogeneous a sub-group is in a measured variable, the lower is the correlation between that variable and other ones. We know, however, that the covariance matrices between the groups are equal (Chapter 3.2.5.).

In the above table, only the correlation coefficients, where a moderate change is to be found, are reported. The changes are minor, and occur mainly in the relationships between career choice motives "vocation", "possibility of influencing" and study orientations "internality" and "reforming", and personality trait "introversion-extraversion". The intercorrelations of study orientations and personality traits remain the same in all of the five student-groups. We may conclude that although the groups differed significantly from each others in respect of some study orientations and personality traits, the correlations are so equal that it's feasible to continue the analysis of the structure of the presage/process -domains in the joined data. The situation

is illustrated in the hypothetical diagram in figure 14.

Figure 14. A hypothetical diagram of two groups with different means but same correlations



3.3.2. Relationship between study orientations and personality traits

The intercorrelations of study orientation dimensions and personality traits were shown in Table 29 . The diminishing of the variance due to the study program did not have great effect on the correlations of study orientations and personality traits. In Part I, Chapter 3.4. study orientations were defined as indicators of ideologies. Personality traits as operationalized in this study have natural connections with study orientations. To investigate this relationship more profoundly, canonical factors were computed with MYLPS-program and the solution is compared with the traditional factor-analysis solution. Canonical analysis is suitable for the analysis of two sets of measurements made on the same subjects. (Cooley and Lohnes 1971, 168; Levine 1977)

Three statistically significant canonical correlations were found (Table 31). Cooley and Lohnes (1971, 176) advise to treat canonical correlations of .30 or less as trivial. With this rule of thumb, the third pair of the canonical variates is not worth further attention.

The factors (=pairs of canonical variates) are interpreted using the structure coefficients (correlations between original variables and canonical variates). The first canonical factor is a reforming-conserving- factor: composed of reforming- orientation and the personality traits of conventionality - originality, introversion-extraversion and unconcern for obligations - sense of duty. The percent of trace of the first variate of the first factor is 30.0% and that of the second variate 32.8%.

The second canonical factor seems to be an achieving factor, where internality, achieving and the trait "unconcern

Table 31. Correlations between the original variables and derived canonical variates

	FI	FII	FIII
Ego strength -Ego weakness	.43	.49	-.48
Unc. for obl. - Sense of duty	.59	-.79	-.05
Introversion - Extraversion	-.61	-.40	-.40
Balance - Anxiety	.02	.34	-.56
Conventionality - Originality	-.77	-.07	.01
Percent of trace	30.0%	22.9%	14.1%
Pragmatism	-.51	.48	.71
Internality	.42	.84	-.16
Achieving	-.41	.75	-.19
Reforming	.84	.39	.26
Percent of trace	32.8%	41.3%	15.8%
Rc	.63	.35	.25
Rc^2	.39	.12	.06
Chi^2	500	142.9	48.8
df	20	12	6
p	.001	.001	.001

Redundancy / Solution	dependent set: personality	dependent set: study orientation
1.	11.7	12.8
2.	2.7	5.0
3.	0.8	0.9
total	15.2	18.7

for obligations" (sense of duty) have correlated with the canonical variates. The status of "pragmatism" is questionable in this canonical factor. The interpretation of the factors is problematic, because the variables correlate with both the first and the second factor. The canonical factors ought to be orthogonal, but in this case it's doubtful. The percents of trace are 22.9% for the personality traits and 41.3% for the study orientations.

The nature of the canonical analysis is evident in the second factor:" ..the resultant linear combination of the X set variables is maximally correlated with the linear combination of the Y set variables" (Levine 1977, 15). Internality and achieving get the highest correlations with the second variate of study orientations, and personality trait "sense of duty" is the dominant variable to create the second personality trait variate. Together they make a factor which in a way is understandable, but can be considered too weak. In the first factor, internality and achieving have opposite signs and moderate correlations, which makes the factor bipolar: reforming and internality contra pragmatism and achieving. The redundancy coefficients of the second factor are so low (2.7% and 5%), that the factor can be considered unimportant.

The result of the canonical analysis have elements in common with the previous discriminant analysis. The main dimensions appear in the first canonical factor (and have traces in the second): 1) reforming/internality plus originality/extraversion, and 2) pragmatism/achieving plus sense of duty/ego weakness.

To get some more information about the relationships between the two domains, a factor-analysis (principal axes, varimax rotation with three factors) was executed. In methodologi-

cal literature, an analysis of this kind normally creates "test-factors" (see e.g. Cooley and Lohnes 1971, 189-192).

The total explanation of the three-factor solution is 47.1%, which is considerably better when compared to the canonical analysis solution. The three factors explain 17.9%, 16.2% and 13% of the total variance and the solution is quite pure. At a first glance we can also notice, that the personality traits and study orientations have loaded on both the first two factors: only the third factor is a personality trait "test-factor".

Table 32. Three-factor varimax- solution of the personality traits and study orientations

	I	II	III	h^2
PRAGMATISM	-03	64	-14	43
INTERNALITY	65	29	21	56
ACHIEVING	11	70	05	50
REFORMING	75	-05	15	59
EGO STRENGTH VS.	28	-07	63	48
UNCONCERN FOR OBL. VS.	28	-55	-33	49
INTROVERSION VS.	-38	11	-50	41
BALANCE VS.	-10	15	55	34
CONVENTIONALITY VS.	-55	37	14	45
eigenvalue	1.6	1.5	1.2	4.2
percent of expl.	17.9%	16.2%	13.0%	47.1%

The first factor gathers the following variables: reforming, internality and conventionality-originality. Internality has loaded mainly on the first factor, contrary to the canonical analysis solution, where it had closer connections with the variate of achieving. In discriminant analysis internality

was connected solely with reforming. The first factor is labelled **Reforming-conserving.**

The second factor has loadings on achieving, pragmatism, and unconcern for obligations vs. sense of duty. In canonical analysis, pragmatism had correlations with both the first and the second canonical factors, and in discriminant analysis it did not separate the groups. The similarity to the previous analysis is, however, evident. The second factor is labelled **Achieving/Pragmatism** factor.

The third factor gathers high loadings on ego strength, extraversion and balance. This factor has no study orientation loadings and perhaps explains why extraversion was split in two functions in the discriminant analysis. In the canonical analysis extraversion loaded on all three factors, as did ego strength. As to balance, it seems to be quite independent of study orientations. In the discriminant analysis it separated well together with reforming and extraversion between the groups, but in canonical analysis it correlated with only the third, nonsignificant factor.

The third factor can be labelled **ego strength** but as to the theoretical model of Chapter 3.4., it's of minor importance. The first two factors account for 34% of the total variance and they highlight the connections between study orientation and personality well in accordance with the previous analysis. It seems that, if we artificially keep personality traits and study orientations apart in the analysis (like in canonical analysis), we get a more vague interpretation of the basic common dimensions. Anyway, the three multivariate data analysis done so far, have revealed findings of the same kind: we have ideological dimensions of reforming vs. conserving contra achieving/ pragmatism (plus sense of duty) vs. unconcern for obligations.

3.3.3. The structure of the study orientations

The structure of the study orientations is examined with a second-order factor-analysis. This analysis is mainly theoretical, to investigate thoroughly the dimensionality of the field. According to Cattell (1978, 193-197) there are two possibilities to create higher-order factors: to start from the correlations obtained from the simple structure resolution of primary factors or to start from the correlations among batteries or scales built up to measure the primaries. The first one is called pure factor method and the second one concrete scales method. They tend to give closely similar structures.

However, some advantages and disadvantages are linked to the method of making higher-order factors. As to the concrete scales method, the scales or batteries may not be pure, they may have common impurities with other scales that adds to the correlations. The second disadvantage is the fact that the scales are not fully reliable or valid because they have random error and specifics contributing to the scores. On the other hand, the pure factor method is sensitive to the rotation and to how exact it is. (Cattell 1978, 198)

Cattell advocates the use of the mean of the two correlation matrices if one does not want to make two higher-order factor solutions (first pure factor method and then concrete factor method. The results of these could be compared.) In methodological literature one can find even more strict rules. Kim et al. (1978, 77) consider the concrete scale method totally inappropriate to obtain higher order factors. Because of the disadvantages of the concrete scales method mentioned above and the results of previous analysis in Chapters 3.3.1. and 3.3.2. the pure factor method is chosen.

The primary factor-analysis was made with the principal components method and rotated obliquely using a "fairly oblique solution" of the SPSS-program. The six-factor solution was chosen based on the following reasons: 1) it fulfilled the five criteria of Thurstone about the simple structure (Kerlinger 1975, 672-673), 2) it was possible to interpret the factors. The principal axis, factor pattern and facto structure matrices are in Appendix 8. The factors were identified as follow:

I Achievement orientation

var. no.	orig. scale	load.	item
69	A	80	I want to be among the best in all my studies.
4	A	78	It is important to me to pass exams with better grades than others.
44	A	76	I try to do my study work better than the others.
46	A	71	I enjoy competition, it is stimulating.
14	A	67	The fact that we have to compete with each other when studying, is stimulating to me.
39	A	66	It is very important to me to do well in all my exams.
51	A	60	I want to pass the exams with credit.

II Reforming orientation

58	R	54	I started to study this subject because I take a critical stand towards the way of teaching in our schools.
40	R	50	I think that there is a lot to reform in the teaching of educational sciences.
22	I	50	Generally I read only the parts that interest me in the textbooks.
26	R	50	I try to change the teaching of this intitute in a more rational direction.
11	R	46	I often find myself questioning things that I hear in lessons/lectures or read in books.
16	A	41	I should like to have more freedom to choose the readings for exams.

III Feeling of stress

70	I	58	The busy timetable of our studies is harmful to my studies.
17	P	57	I have been overstressed while studying here.

67	P	40	I need clear lay-outs in the lectures here.
21	P	39	The desultoriness of our studies hinders me from studying effectively.
IV Individual vs. group work			
41	R	-78	Studying with a group is the best way of studying for me.
53	A	72	Studying individually is the best way of studying for me.
18	R	-55	It's most important for me to co-operate with other students.
35	R	-53	Being one of the group is one of the most important things in my studies.
65	R	-30	I've continued my studies here mainly because of the good spirit in my group.
V Pragmatism			
42	P	72	I want to bring my studies to completion as quickly and efficiently as possible.
63	P	67	I want to get my degree as soon as possible in order to get a job.
25	P	41	I want to strive ahead in my life.
61	P	39	I follow a strict timetable in my studies.
VI Internality			
29	I	-58	It's really important to me to develop mentally while I study.
43	I	-53	I quite often think about things that I've learned from lectures or read in textbooks.
19	I	-48	I read a lot during my freetime in order to get some more information about education and teaching.
12	I	-46	I'd like to continue my studies in educational sciences after getting the degree.
37	I	-47	I should like to develop my own philosophy of life while I'm studying.
7	P	45	I find it unnecessary to study the extra literature that is mentioned in the lectures.
62	R	-42	I search for alternative educational literature to balance the teaching we are given here.

When a varimax-rotation of the same matrix was done (see Chapter 4), the factors were identical to the oblique-rotation. The only difference was a somewhat lower percentage of explanation in varimax-rotation. Nunnally (1967, 327) who has "a mild preference for orthogonal solutions" points out: "..there have been numerous demonstrations that the two approaches lead to essentially the same conclusions

about the number and kinds of factors inherent in a particular matrix of correlations".

We may also doubt the SPSS-manual for the rules of determining the obliqueness of the solution. Sandelin (1981, 107) reports of a comparison between an orthogonal solution and an oblique one (seeking for an "extremely oblique solution") that the advice of the manual caused nearly orthogonal solution. Anyway, in this study, the search for a 'fairly oblique solution' to facilitate the computation of second order factors, seems to have been successful. Table 33 shows the correlations between the factors. The correlations are

Table 33. Factor correlations

	I	II	III	IV	V	VI
I	1.000					
II	-.078	1.000				
III	.126	.03	1.000			
IV	-.059	-.053	-.068	1.000		
V	.202	-.02	.061	.009	1.000	
VI	-.077	-.232	.095	.145	-.195	1.000

Table 34. Principal factor solution and varimax rotation of the study orientation factors

principal factor matrix					varimax rotation matrix				
	I	II	III			I	II	III	h^2
1	-17	44	-15		1	04	47	15	25
2	-26	-16	28		2	-40	-13	04	17
3	04	43	36		3	-04	10	56	32
4	17	-05	-13		4	19	-05	-09	05
5	-28	29	-18		5	-08	43	00	19
6	81	13	01		6	71	-31	27	67
eig. val.	1.4	1.2	1.1			.86	.51	.29	
% of var.	23.3	20.5	17.5	61.3		51.7	31.0	17.3	
cum. %	23.3	43.7	61.3			51.7	82.7	100.0	

low, but the possibility of second-order factors still remains. This is investigated with principal factors and varimax-rotation (SPSS-program).

Three second-order factors have the eigenvalues above unit (Table 34). They were interpreted as follow:

I **Reforming vs. conserving** . The highest loadings are on internality and reforming. There are elements of a static attitude towards new knowledge or self-development in the items that have high loadings on the sixth primary factor: "it's not important to develop mentally"..,"to get more information..,"to develop". The items of the second primary factor reveal a critical, reforming and active stand towards studying. One should notice that the signs of the two variables are contrary, which makes the first factor bipolar.

II **Achieving**. Loadings on achieving orientation and pragmatism. The primary factors have the highest loadings on items that relate to fast studying, competing with others and striving ahead in life. This factor contains 20.5% of the variance as compared to 23.3% of the first factor.

III **Stress**. This second-order factor has only one high loading, that of the third primary factor, feeling of stress. This factor is under further discussion in Chapter 4 in order to investigate which student group has experienced most stress in their studies or whether stress is a common feature of higher education in these institutes.

The total explanation of the solution is high, 61.3%. One must remember, however, that the primary factor-matrix gave only the percentage of 33.5 and the second-order solution is built upon this. The communalities of the matrix are low

indicating a rather poor reliability of the scales.

The structure of the solution is, however, reasonable. It does give a moderate support to the theoretical model in Part I, Chapter 3.4. The two main dimensions found were the same as in previous multivariate analysis: 1) reforming-conserving / achieving in discriminant analysis, 2) reforming-conserving/ achieving in canonical analysis and 3) reforming-conserving / achieving & pragmatism in factor analysis. The rough correlation analysis in Part II, Chapter 3.3.1. about the connections of career choice motives, personality traits and study orientations gave similar linkages, too.

3.4. Connections of personality, study orientation and career choice motivation with experiences on studies

The forth problem concerned the connections of study orientations, career choice motivation and personality traits with self-expressed study experiences. The capability of the variables to account for the study experiences is investigated through stepwise regression analysis, first in total data and then using the variables produced by the stepwise method to explain study experiences in the five sub-groups.

The outcomes of the four main analyses in total data are reported in Tables 39 to 42. Best predictors for the self-expressed success in studies are achievement orientation, sense of duty (unconcern for obligations having a negative sign), pragmatism and security in making a living. The amount of variance explained is 22% in the total group. This

group of variables appeared also in the analysis of the relationships between personality traits and study orientations (Part II, Chapter 3.3.) and it is well in accordance with previous research findings of the determinants of study success (Entwistle 1981, 274; Entwistle and Wilson 1983, 53-56 and 201; Ropo 1984, 180)

Table 35 shows the beta-coefficients of the sub-groups and the percentages of variance explained with this model. Achieving orientation is the most important variable to account for self-expressed study success in all the groups. The sign of pragmatism is negative, which is due to the high correlation between achieving and pragmatism (r=.46). The beta-coefficients of security in making a living range from that subject teacher students evaluate their success in two institutes: that of their main subject and that of teacher education.

Table 35. Beta-coefficients of the five student teacher groups in the model accounting for self-expressed study success

Study program	Beta-coeffic. for: Achiev.	Unconc. for obl.	Pragm.	Security in making a living	Perc. of expl.	p
Nursery	.31	-.23	-.23	.09	16%	.001
Elementary	.41	-.19	-.08	.06	25%	.001
Subject	.53	-.09	-.12	.00	27%	.001
Home ec.	.41	-.14	.12	.33	29%	.001
Textile h.	.57	-.17	-.22	.04	36%	.001
total	.41	-.18	-.14	.08	22%	.001

Textile handicraft teachers, on the other hand, is the group where the model obtained through the stepwise total group regression analysis works best. The percentage of explanation is 36%. To compare this with the 16% of nursery school teacher students is interesting. It seems that the latter

group sets less value on achieving, and there may be other predictors outside the model that explain more effectively the self-expressed study success in nursery school teacher training (see also Perho 1983, 43-44 of a similar finding).

The satisfaction over students' study period is explained by the following predictors: balance vs. anxiety, internality, conventionality-originality, introversion-extraversion and appreciating the good social status of a teacher. The amount of variance explained is 14%. Four predictors are about the same value: balance, conventionality, internality and introversion-extraversion. (Table 40)

In Table 36 the beta-coefficients of the sub-groups are given. Of the five teacher student groups in question, the model works best with the textile handicrafts students and worst with the nursery school teacher students. The differ-

Table 36. Beta-coefficients of the five student groups for the model accounting for the self-expressed satisfaction over the study-time in the training institute

Study program	Beta-coefficients for B-A	social status	I-E	Conv.	Int.	Per. of expl.	p
Nursery	.07	.04	-.22	.05	.01	6%	.02
Elementary	.13	.11	.21	-.10	.36	23%	.001
Subject	.22	.09	.04	.23	-.03	13%	n.s.
Home ec.	.09	-.08	.05	.31	.16	17%	.02
Textile	.13	.23	.45	-.28	.04	36%	.001
total	.16	.11	-.16	.16	.16	14%	.001

Key: B-A =balance-anxiety, social status= career choice motive of valuing the good social status of a teacher, I-E=introversion - extraversion, conv.= conventionality-originality, int.= internality

ences between the five institutes appear clearly here: extravert personalities are most satisfied with the nursery school teacher training, internality oriented students with elementary teacher training, conventional students with the subject teacher and home economics teacher training, and introvert personalities with the textile handicrafts teacher training. This finding relates back to the analysis of the differences between the student groups (Part II, Chapter 3.2.).

The satisfaction over the teaching of the institute as regards to the demands of their prospective jobs (Table 41) is explained by the combination of sense of duty (unconcern for obligations), internality, conventionality-originality, social status of a teacher and previous working experience. The amount of variance explained is 13%. To understand these variables as the best predictors of the criterion in question the reader should be reminded of the results of Hytönen (1973; see Part I, Chapter 2.2.2.): teaching practice behavior can be described with the dimension of conscientiousness, which in his study was connected with the personality traits of mental rigidity, endurance and not being impulsive. The study of Niemi (1984a and 1984b) on subject teacher students express the same finding: conventionality correlates with success in student teaching, and in addition to this, with authoritarian attitudes, teacher-centered and impersonal teaching (see Part I, Chapter 2.3.)

Table 37 shows the beta-coefficients of the groups using the above regression model. The model works well in three subgroups, although the percentage of explanation is rather low with the nursery school teacher students. The model doesn't work satisfactorily with subject teachers (conventionality has a zero beta coefficient and unconcern for obligations a

Table 37. Beta-coefficients of the five student groups. Satisfaction over the training as regards the demands of the job of the teacher as criterion.

Student group	Beta-coefficients for...						
	Unc. for obl.	Int.	Conv.	Soc. stat.	Prev. work. exp.	Percent of expl.	p
Nursery	-.13	.06	.12	.05	.17	9%	.001
Elementary	-.13	-.17	.18	.14	.20	14%	.001
Subject	.14	.03	-.01	.26	.12	7%	n.s.
Home	-.02	.09	-.04	.09	.30	11%	n.s.
Textile	-.10	.16	.21	.06	.19	16%	.02
total	-.10	.10	.12	.16	.15	11%	.001

positive sign), which leads one to think that subject teacher students are unfamiliar with the demands of their prospective career. Previous working experience is the best predictor in the groups of nursery, elementary and home economics teacher students.

Table 42 shows the model created through a stepwise regression analysis of the whole student group using the question **"How well has your training formed you towards an ideal teacher?"** as a criterion. The best predictors are: **Vocation as a career choice motive, achieving orientation, introversion-extraversion good social status of a teacher, balance-anxiety, chance for later further education, financial security.** The percentage of explanation with these variables is 13%.

Table 38 gives the beta-coefficients of the groups when using the above model. The model works best with the group of textile handicraft students and worst with nursery school teacher students, as in previous analyses, too. Home economics teacher students and nursery school teacher students

Table 38. Beta-coefficients of the five student groups using the relevance of the training to the image of a good teacher as criterion

Study program	Beta-coefficients								
	voc.	sch.	I-E	soc. stat.	B-A	further educ.	financ. secur.	%	p
Nursery	.03	-.13	.08	.02	-.00	.05	.17	7%	n.s.
Elementary	.01	.10	.11	-.01	-.06	.18	.20	13%	.001
Subject	.25	-.03	.09	.07	.23	.05	.05	19%	.05
Home	.13	.08	-.02	.12	.13	.01	.11	10%	n.s.
Textile	.27	.12	-.37	.04	.20	-.00	-.06	26%	.001
total	.15	.09	.08	-.09	-.10	.15	.15	13%	.001

do not possess an image of a good teacher that could be reasonably explained with this model. One of the main predictors in the stepwise regression model, vocation, is of minor value in the model for elementary or nursery school teacher students, which may be due to the skewness of the distribution of the variable.

The above analysis have destrictions. The high correlations between the predictors lower the β-coefficients, and the analysis are mainly descriptive.

Table 39. Stepwise regression analysis. The self-expressed success in studies (var. no. 80) as criterion. (N=721).

Variables	Beta coefficients				t values				inc. in mcs				F	p <
Achievement orientation	.43	.37	.42	.42	12.8	10.5	10.9	10.8	.18	.12	.13	.13	162.7	.01
Unconcern for obligations		-.16	-.18	-.18		-4.5	-5.0	-5.1		.02	.03	.03	93.4	.01
Pragmatism			-.12	-.14			-3.2	-3.7			.01	.02	66.3	.01
Security in making a living				.08				2.2				.01	51.2	.01
R^2	.19	.21	.22	.22										

Note: t-tests and F-tests should be interpreted with caution (Korhonen 1980)

Table 40. Stepwise regression analysis. The satisfaction over one's study time as criterion. (N=721)

Variables	Beta coefficients					t values					inc in mcs					F	p<
Balance vs. anxiety	.24	.21	.18	.16	.16	6.5	5.9	4.9	4.3	4.5	.06	.05	.03	.02	.02	42.3	.01
Internality		.17	.21	.18	.16		4.7	5.7	4.8	4.3		.03	.04	.03	.02	32.9	.01
Conventionality vs.orig.			.16	.18	.16			4.3	4.8	4.4			.02	.03	.02	28.5	.01
Introversio vs. extraversio				-.15	-.15				-4.2	-4.2				.02	.02	26.3	.01
Social appreciation of a teacher's job					.11					3.2					.01	23.3	.01
R^2	.06	.08	.11	.13	.14												

Table 41. Stepwise regression analysis. Criterion: the satisfaction over the teaching of the institute as regards to one's prospective job. (N=721)

Variables	Beta coefficients						t values						inc in mcs						F	p<
Unconcern for obligations	-.19	-.18	-.11	-.09	-.10	-.08	-5.17	-4.9	-2.6	-2.3	-2.4	-1.9	.04	.03	.01	.01	.01	.01	26.7	.01
Internality		.16	.20	.18	.16	.23		4.3	5.3	4.8	-2.4	-1.9		.02	.04	.03	.01	.01	22.9	.01
Conventionality vs. orig.			.16	.15	.15	.12			3.9	3.6	3.7	2.8			.02	.02	.01	.01	20.5	.01
Social appreciation of a teacher's job				.13	.12	.12				3.5	3.3	3.2				.02	.01	.01	18.6	.01
Previous working experience					.11	.12					2.9	3.2					.01	.01	16.7	.01
R^2	.04	.06	.08	.09	.11	.13														

Table 42. Stepwise regression analysis. Criterion: the satisfaction over the teaching of the institute as regards to the image of a good teacher. (N=721)

Variables	Beta coefficients							t values							inc in mcs							F	p<
Vocation	.23	.20	.18	.16	.15	.15	.15	6.2	5.7	4.9	4.5	4.2	4.3	4.0	.05	.04	.03	.02	.02	.02	.02	38.4	.01
Achieving		.19	.20	.16	.15	.14	.15		5.2	5.5	4.4	4.1	3.8	3.9		.03	.04	.02	.02	.02	.02	33.5	.01
Introv. vs. extrav.			-.12	-.12	-.11	-.10	-.10			-3.3	-3.3	-3.0	-3.0	-2.6			.01	.01	.01	.01	.01	26.3	.01
Social status				.11	.12	-.11	.15				3.1	3.2	3.0	3.6				.01	.01	.01	.01	22.3	.01
Balance vs. anxiety					.09	.09	.08					2.4	2.3	2.4					.01	.01	.01	19.1	.01
Poss. for furher ed.						.08	.09						2.2	2.5						.01	.01	15.1	.01
Economic security							-.09							-2.1							.01	16.8	.01
R^2	.05	.09	.10	.11	.12	.12	.13																

4. Discussion

This chapter forms a conclusion to both Part I and Part II of the study. It starts from the comments on the main results of the empirical part and then moves back to the theoretical starting point, Part I.

Problem 1. Differences between student teacher groups:

The student teachers of this study were prospective nursery school teachers, teachers of the primary level of the comprehensive school (=elementary or class) teachers and (subject) teachers of the secondary level of comprehensive school. In addition to this, two other future subject teacher groups were under study: instructors in home economics and textile handicrafts. All the respondents come from the institutes situated in Helsinki, and no generalization to student teachers of other universities is made. The study was a population study and the percentage of filled-in questionnaires was as high as 81.5% of all students. This adds to the informative value of the study.

The differences between the groups were first analyzed descriptively as to their career choice motives and study experiences. The career choice motives revealed interesting differences between the groups:

- security in making a living attracted subject teacher students, home economics and textile handicrafts student teachers, while nursery and elementary teacher students valued mainly "vocation" and "possibility of influencing",
- item "Good social status of a teacher" was evaluated to be of minor importance by all groups except the students of home economics,
- the possibility for further education was evaluated moderately high by all groups other than subject teachers,
- the possibility for good hobbies attracted all groups,
- previous working experience has been important mainly to

the students of textile handicrafts, who also more often than the other groups study by coincidence in their institute (36% of textile handicraft- teacher students),
- coincidental reasons for studying or influence caused by family or friends were rare in this population.

The above results follow the information gathered from previous investigations (e.g. Jussila 1976, 70-71). The student selection for teacher education is highly selective (e.g. Halmela and Komulainen 1983; Leino and Puurula 1983, 16-17). The students in the institutes concerned represent the highest academic ability and their internal motivation to study for a teaching career is sincere. In this respect there may be differences compared with other institutes in Finland (See Part I, Chapter 2.2.2 about Perho 1982). Panhelainen and Malin (1983, 30-32) report of subject teacher students that vocational orientation and success in student selection correlate positively especially among those male applicants who aim at a teaching career.

The answers concerning study experiences revealed that nursery school and elementary school teacher students are mostly satisfied with their study time and success in their institutes, while textile handicrafts and home economics teacher students express more negative opinions. The relevance of the studies to the "good teacher" image was evaluated as rather poor by all other groups except nursery school teacher students.

The differences were then studied in relation to study orientations and personality traits. The effects of sex and study-time were first controlled and minor differences were found: females were more pragmatic (=reproducing-oriented), conventional and conscientious, males more self-confident (=ego strength). However, the proportions of explanations remained under 2%. Study-time caused some variation in the study orientation and personality variables, but the change

was not linear. This was also the conclusion of the previous investigations of the attitude and value changes of students (see Part I, Chapter 2.2.1.). The differences were considered to be of minor importance for the aims of the study. In a continuation study the development of students is worth studying more in detail.

The differences between the groups were then analyzed by a discriminant analysis. To recapitulate on the differences that were found, the student teachers of nursery and elementary schools are rather alike, and prospective instructors in home economics and textile handicrafts represent the opposite pole. The former group can be characterized as balanced, extravert and reform-oriented, and the latter group as conventional and anxious. Prospective subject teachers form a group of their own being mainly achieving-oriented introverts.

Problem 2 dealt with the relationships between career choice motives, personality traits and study orientations:

It seems that career choice motives, personality traits and study orientations relate to each other in a meaningful manner. Whether the result is due to the circularity of items and the fact that respondents answered in a single questionnaire on all three themes, remains open, but the manner of answering each part was different. This guarantees somewhat more validity to the results. The correlations between the themes are so high, that at least three linkages were found through the inspection of the correlation matrix:
1) financial security, orientation towards pragmatism and achieving orientation plus a sense of duty,
2) self-development as a career choice motive, ego strength and orientation towards internality, achieving and reforming,

3) possibility of influencing, reforming-orientation plus internality and originality (or "non-conventionality"), extraversion and unconcern for obligations,

The original model of Biggs contains two of the above links, namely pragmatism and internality, but achieving is here allied with pragmatism. The third linkage, reform-orientation, relates back to the extension of the model (Part I, Chapter 3.4.).

The above results have features in common with the investigations on career choice motives, where "external", "internal" and "incidental" motives are found by Jussila (1983) as basic dimensions of the area. Only incidental motives and reform-orientation need further specification. The above three linkages appeared also in other analyses of the data, but in a more exact form.

The third problem related to the structure of study orientations:

Figure 15 draws together all the multivariate analyses made in the study. The first-order factor-analysis supported the theoretical model developed in Part I, but two extra factors appeared: Group-work vs. individual work, and stress. The content of the four main factors remained almost the same as the logical dimensions. Correlations between the factors were low, but nevertheless it was possible to compute a second-order factor-analysis. It seems that in this data the basic dimensions of study orientations are reforming plus internality vs. conserving, and pragmatism plus achieving. The dimensions of the theoretical model get only partial support from this data, but "theoretical statements in science are created to be proven wrong" and "if a theoretical statement is proven wrong, science has advanced" (Turner

Figure 15. Summary of the multivariate analysis of presage and process variables

Method	Variables	Results
Discriminant analysis	Personality traits and study orientations	Reforming, extraversion, originality, internality, balance I Introversion, conventionality, anxiety ↓↑ Ego strength, extraversion II Ego weakness, introversion, achieving
Canonical analysis	Personality traits and study orientations	Reforming I Conventionality ↓↑ Achieving (& Pragmatism?) II (Unconcern for oblig. ?)
Factor analysis	Personality traits and study orientations	Reforming & internality I Conventionality ↑↓ Achieving & pragmatism II Unconcern for obligations ↑↓ Ego strength III Ego weakness
Sec. order factor anal.	Study orientations	Reforming & Internality I Achieving & Pragmatism II Stress III

1978, 10-11).

One explanation for the results may be of the same kind as Perho's (1982; see Part I, Chapter 2.2.3). He noticed that academic orientation is more rare in the Joensuu Teacher Training Institute when compared to British university students. Perhaps Finnish teacher education is different from the general (British) university studies as far as achieving is concerned. Emphasis on group work during the first two study-years is sure to diminish the individual competition (Uusikylä 1983b), and achieving-orientation relates here mainly to pragmatism. The other aspect of "academic"- studies, that of internality, is here related to reforming-orientation. This conclusion gets support from the result that the traditional university students of the study, namely prospective subject teachers, are more competitive and achieving-oriented.

The dimension of stress (which appeared in the second-order factor analysis) reveals that the results from the evaluation studies of the impacts of the new teacher education have produced valid and reliable information: the new teacher training is evaluated by students as exhausting (see Part I, Chapter 2.2.4. about Uusikylä 1983a and Louhisola 1983). The influence of stress is also to be seen in previous phases of the analysis. It formed a factor of its own in the analysis of the dimensions of study orientations, and in addition to this, it can be seen behind the answers to the items concerning study experiences. Table 43 shows the factor-score means of the stress-factor. The means of textile handicrafts and home economics students are extremely high. Further investigations of the reasons for the expressed stress and dissatisfaction are needed in the textile handicrafts and home economics programmes. It is impossible to draw more conclusions from the questionnaire-based data of

Table 43. Means, deviations and t-tests of the stress (primary) -factor

	Nursery school	Elem. school	Subject	Home ec.	Textile handicr.
M	481.9	479.4	512.5	543.8	550.9
d	94.0	98.8	82.2	96.9	104.5
N	227	244	77	88	85
Elem.	-0.28 469				
Subject	2.54* 302	2.66** 319			
Home ec.	5.20** 313	5.27** 330	2.22* 163		
Text.	5.60** 310	5.66* 327	2.58* 160	0.47 171	

this study, especially, because the respondents of these programs had not written down any free comments on this particular matter.

An interesting finding that also demands further analysis in subsequent studies is the close connection between ego-strength and extraversion, and the fact that they were independent of study orientations.

The fourth problem concerned connections of career choice motives, personality and study orientations to study experiences:

The analyses that were made repeated the above results, and revealed some of the weaknesses of the regression-analysis technique: high correlations between the variables cause difficulties in interpreting the importance of β-coefficients and homogeneous sub-groups may lead to 0-coeffi-

cients.

Especially interesting is the question of conventionality or an ethos to keep things as they are. When students were asked to give their opinion on the relevance of the training to the demands of their future job, the most influential variables of description were "social status of a teacher", "conventionality", "previous working experience" and "sense of duty". Hytönen (1971) reports that one of the main dimensions of teaching practice behavior is the sense of duty, which is related to mental rigidity, need endurance and not being impulsive. Niemi (1984) reports that success in student teaching is related to conventionality, authoritarian attitude, practical role. (see Part I, Chapters 2.3. and 2.2.4.)

We should question these linkages or ethos in teacher education. They do not follow the official goals of teacher training (see Part I, Chapter 1.2.). The ethos that describes the present Finnish ideal of a teacher stresses a humanistic, socially oriented, active and highly-educated personality. If teacher education promotes conventionality and strict obedience to authorities, we risk losing this aim. Bell (1971) reports on student teachers who had high opinions of student teaching. These students were emotionally stable, humble and shrewd, and their cooperative teachers were practical, conservative and subdued. Seperson and Joyce (1981, 101-107) report on a study of teaching styles of student teachers and cooperating teachers. They conclude that the cooperating teacher is a powerful influence, for good or ill. The influence is not only verbal behavior, the whole setting affects the student. To avoid this, we need further education of teacher educators, and specification of the aims of teacher education. Research on new ways of teaching (e.g. matching of teachers and students) is also

needed.

When the assessment of a student's own study success was used as a criterion, the best predictors were the one's related to pragmatism and achievement. This finding relates to previous studies, where the criterion has been actual success in studies (Entwistle 1981, 274; Ropo 1984, 180). Best predictors of "how well has your training formed you towards an ideal teacher" were vocation as a career choice motive, desire for futher education and financial security.

The regression models of the total data were applied to each subgroup, and some minor differences were found. E.g. satisfaction over the training period (or perhaps teaching of the institutes in question) was assessed differently in each sub-group, which is quite natural, and a source for further intensive studies concerning the teaching atmosphere, contents and forms of teaching in the institute.

It is concluded, that the theoretical model of Chapter 3.4. must be modified to include more general dimensions, if universal theories of study orientations are needed. A two-dimensional theory might well satisfy the needs of describing study orientations defined as indicators of ideologies: reforming vs. conserving and achieving vs. "not-achieving" (perhaps being lazy, or being indifferent). This model, however, covers only about one-third of the variance of the items concerning study orientations. The three-dimensional model of Entwistle and Biggs is not supported by this study. Study orientations reflect the circumstances of students, the stress they feel and the curriculum in use.

A further comment is made here about the reliability and validity of the results. The reliability coefficients of the sum-scales were respectable (.73-.78 for the study orienta-

tion and .73-.88 for personality traits), except in the subgroup of the 4th year home economics group (which may be due to the stressed and anxious atmosphere described above). For basic research, a reliability coefficient of .80 is sometimes set as an ideal (Nunnally 1967, 226), but in previous investigations of study orientations, this seldom is reached. On the other hand, Henerson et al. (1978, 56) consider reliability as low as .50 useful in attitude measures, if it is used for making comparisons about different groups or programmes and not individuals.

Validity of the results is mainly internal validity: relationships between the variables follow reasonable linkages from career choice motives to personality traits and to study orientations. Content validity of the dimensions of personality traits and study orientations was studied through factor-analysis, which gave support to the primary dimensions, but also revealed minor weaknesses in the logical scales. The dual procedure of interpreting the results was thus necessary : both primary sum-scales and factor-variables were in use. The logical reforming orientation scale is the weakest hiding two different sides of reforming.

The theoretical part of the study consisted of heterogenous elements: 1) regulations for the present teacher education, 2) a survey of the methods and main findings of the characteristics of "good" teachers, 3) a review of Finnish studies on teacher education, 4) research on study orientations 5) the formation of structures of knowledge. The first three themes serve the purpose of giving background information for a study concerning student teachers in Finland. The last two themes lead to a more theoretical discussion about the methodology of the study orientation studies, and the evident links between them and the trait-theoretical personal-

ity studies.

The sociology of knowledge offers one theoretical starting point for the research of study orientations as indicators of ideology. However, ideology is a concept of much controversy. In this study "ethos" also seems to come up in some contexts in the meaning of common ideas, all thoughts. Another possibility might have been to use the concept "symbolic universe", which is to be seen as a synonym of ideology as here defined. Theoretical argumentation about the advantages and drawbacks of these concepts must be continued.

In subsequent studies the theoretical part of the study needs to be extended especially to the writings of Schütz. Kasvio (1981) analyses the problem of intersubjectivity in the works of Schütz and points out that intersubjectivity is a fundamental ontological category to Schütz. We-relations here-and-now have primacy over individuality (or more fundamental sociological structures as productive forces or collective consciousness). Interpretations of communication are subjectively formed in "Lebenswelt" of individuls. Schütz thinks, that it is absurd to suppose that an individual might wholly understand the experiences of another one, says Kasvio. This facts limits the use of qualitative, idiographic techniques. Kasvio points out that the phenomenological analyzes of the intersubjective constructions and constitutions carry with them the danger of subjectivity.

Common sense constructions of knowledge are important themes of phenomenological research. Salonen and Olkinuora (1982, 91) study Schütz and comment that although a scientist uses more theoretical constructions (a researcher is/ought to be more objective, has more information, is not tied to the subculture or here-and-now -perspectives), he may have in-

ternalized the existing common sense thoughts and presents them as sentences of scientific truth. The process of interpreting the results gathered either through questionnaires or face-to-face interviews is the same: data filters through the symbolic universe of the researcher. S/he uses the structures of her/his own to report the results. The methodological ideas of Schütz seem to be worth further studying when developing theories about study orientations.

The theoretical discussion about the formation of structures of knowledge, the way people use everyday language and the higher-order language of educational researchers are all interesting topics of both psychology and sociology. The sociology of knowledge and the new trends in the cognitive psychology do have common elements. However, the latter concentrates mainly on an individual and the former on the circumstances and surroundings of people. Because of the sociological treatise of the theme, "personality" has here taken the role of a complementary variable. The present study is not to be seen mainly as a study of a student teacher's personality. The measured characteristics were used to get a deeper understanding of study orientations- and above all, it is not argued that the same traits apply to all people in all contexts. In the same way, career choice motives, sex and study-year serve the function of expanding our educational understanding of teacher students and their study process in different institutes.

The use of complex statistics has been intentional here. We should not underestimate the possibility of summing up the opinions of hundreds of respondents, especially when they are eager to express their own thoughts and even to let the researcher know their identity. Soft interviews do not allow for this, and they may give highly invalid results concerning the whole group. Data processing techniques are in a way

mechanistic, but a computer does only what a researcher demands. Unfortunately the results are not so easily transferred to everyday language, and reports thus miss the audience that Mills demanded (Part 1, Chapter 4.4.). Perhaps in educational sciences we ought to write several reports of the same research, one for each audience.

One final word about the most conspicuous result of the study, the feelings of stress that the students expressed. The institutes of home economics and textile handicrafts were amalgamated into the university in the late 1970's. Some of the findings of this report may be due to the differences in study atmosphere: teaching of elementary and subject teachers being more "university" -type. Gröhn (1984) has started a longitudinal research project concerning the basic principles of the home economics teacher program, the study strategies and experiences of students. Investigations of the same kind are needed and improvements they suggest ought to be implemented.

The integration of teacher education at all levels of teaching demands a search for answers to such mainly philosophical questions as: "what is knowledge?", "what is it used for", "why do people like to study or learn something?", "why teach someone something?" There may be no definite answers to these questions, but an educator must make the fundamental thoughts about educating him/herself clear. To go back to the simplification of reality used in this research, to the dimensions of pragmatism + achieving and reforming vs. internality: an educator needs to know whether (and when) he is aiming at good jobs or careers or whether (and when) he prefers self-growth. The things he values are reflected in the way he teaches.

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Appendix 1.

NIMI _____
(tekstaten)

HYVÄ VASTAAJA

TÄSSÄ KYSELYSSÄ TUTKITAAN OPISKELUTAPOJA, -MOTIIVEJA JA ARVOJA. VASTAA ENSIVAIKUTELMASI PERUSTEELLA JA REHELLISESTI OMAN MIELIPITEESI MUKAAN. ETENE MELKO NOPEASTI, ÄLÄKÄ VÄLITÄ, VAIKKA SAMANTAPAISIA KYSYMYKSIÄ ON TOISTUVASTI. KIITOS AVUSTASI.

RENGASTA ITSEESI SOPIVIN VAIHTOEHTO NUMEROISTA 1-7:

	ei sovi lainkaan -						sopii hyvin +
1. Kun teen harjoitustöitä, yritän tehdä ne tiukasti annettujen ohjeiden mukaan.	1	2	3	4	5	6	7
2. Opiskelen tätä alaa, koska sen yhteydessä on mahdollista harrastaa minulle tärkeitä asioita.	1	2	3	4	5	6	7
3. Innostun asiasta, jota olen opiskelemassa niin että kaikki muu tahtoo sillä hetkellä unohtua.	1	2	3	4	5	6	7
4. On tärkeää selviytyä muita paremmin tenteissä.	1	2	3	4	5	6	7
5. Olen valinnut tämän opiskelualueen voidakseni uudistaa nykyistä kasvatus- ja opetuskäytäntöä.	1	2	3	4	5	6	7
6. Pyrin lukiessani ymmärtämään kaiken lukemani täysin.	1	2	3	4	5	6	7
7. Mielestäni on tarpeetonta tutustua siihen ylimääräiseen kirjallisuuteen, jota luennoilla esitellään.	1	2	3	4	5	6	7
8. Osaan käyttää opiskeluun tarvittavan ajan tehokkaasti hyväkseni.	1	2	3	4	5	6	7
9. Opettelen usein ulkoa luennoilla esitetyt faktatiedot kuulustelua varten.	1	2	3	4	5	6	7
10. Toimin aktiivisesti erilaisissa kerhoissa opiskelun ohella.	1	2	3	4	5	6	7
11. Huomaan usein asettavani kyseenalaiseksi asioita, joita olen lukenut tenttikirjoista tai kuullut luennoilla.	1	2	3	4	5	6	7
12. Tulen todennäköisesti jatkamaan kasvatusalan opintoja tutkinnon suorittamisen jäkeen.	1	2	3	4	5	6	7
13. Keskustelen usein muiden kanssa niistä asioista, joita opiskelemme.	1	2	3	4	5	6	7
14. Kilpailutilanne opiskelussa on itselleni vain kannustavaa.	1	2	3	4	5	6	7

	-						+
15. Tekemättömät työt tai tulossa oleva tentti estää minua usein saamasta unta.	1	2	3	4	5	6	7
16. Minusta suurempi valinnan vapaus tenttikirjallisuudessa olisi erittäin suotavaa.	1	2	3	4	5	6	7
17. Olen ollut melkoisen ylirasittunut opiskellessani täällä.	1	2	3	4	5	6	7
18. Yhteistyö muiden opiskelijoiden kanssa on minulle tärkeää.	1	2	3	4	5	6	7
19. Luen vapaa-aikoinani runsaasti saadakseni lisätietoja kasvattamisesta ja opettamisesta.	1	2	3	4	5	6	7
20. Haluan tulevassa ammatissani olla muiden ihmisten kanssa tekemisissä.	1	2	3	4	5	6	7
21. Opinto-ohjelman rikkonaisuus estää minua opiskelemasta tehokkaasti.	1	2	3	4	5	6	7
22. Useimmiten luen tenttikirjoista vain sen, mikä kiinnostaa minua.	1	2	3	4	5	6	7
23. Arvostan opetuksessa vapaamielistä ja rohkeaa uusien ideoitten esittämistä.	1	2	3	4	5	6	7
24. Odotan myös opettajilta täsmällisyyttä omassa opetuksessaan.	1	2	3	4	5	6	7
25. Haluan pyrkiä elämässäni eteenpäin.	1	2	3	4	5	6	7
26. Pyrin omalla panoksellani muuttamaan korkeakouluopetusta järkevämpään suuntaan.	1	2	3	4	5	6	7
27. Toteutan itseäni parhaiten opiskelemalla.	1	2	3	4	5	6	7
28. Tämä koulutus mahdollistaa jatko-opinnot haluamallani alalla.	1	2	3	4	5	6	7
29. Oma sisäinen kasvuni on aina ollut opiskelussani tärkeää.	1	2	3	4	5	6	7
30. Minua kiusaa melkoisesti, jos opettaja poikkeaa opinto-oppaassa esitetystä kurssin sisällöstä.	1	2	3	4	5	6	7
31. Pelkään epäonnistumisia tenteissä.	1	2	3	4	5	6	7
32. Opiskelu auttaa asettamaan asiat tärkeysjärjestykseen - elämänarvot uusiksi.	1	2	3	4	5	6	7
33. Pidän tärkeänä, että tuleva ammatini antaa turvallisen elintasoa.	1	2	3	4	5	6	7

	-						+
34. Varaan kirjastoista tarvitsemani kirjat useita viikkoja ennen kuulustelua.	1	2	3	4	5	6	7
35. Pidän opiskeluryhmään kuulumista opiskeluni tärkeimpänä kokemuksena.	1	2	3	4	5	6	7
36. Jos olosuhteet eivät ole opiskeluni kannalta suotuisia, onnistun yleensä korjaamaan ne.	1	2	3	4	5	6	7
37. Haluan opiskellessani kehittää erityisesti omaa elämänfilosofiaani.	1	2	3	4	5	6	7
38. Osallistun runsaasti muuhun toimintaan opiskelun ohessa.	1	2	3	4	5	6	7
39. Minulle on erittäin tärkeää selviytyä hyvin kaikista kuulusteluista.	1	2	3	4	5	6	7
40. Minusta kasvatustieteen opetuksessa olisi runsaasti uudistettavaa.	1	2	3	4	5	6	7
41. Paras opiskelutapa minulle on muiden kanssa yhdessä opiskelu.	1	2	3	4	5	6	7
42. Haluan saada opintoni loppuun mahdollisimman nopeasti ja tehokkaasti.	1	2	3	4	5	6	7
43. Pohdiskelen usein asioita, joita olen kuullut luennoilla tai lukenut tenttikirjoista.	1	2	3	4	5	6	7
44. Pyrin yleensä tekemään opiskelutehtäväni muita paremmin.	1	2	3	4	5	6	7
45. En pidä tutkinnon suorittamista sinällään tärkeänä, sillä opiskelu on minulle harrastus.	1	2	3	4	5	6	7
46. Pidän kilpailuhengestä opiskelussa, sillä se on kannustavaa.	1	2	3	4	5	6	7
47. Yritän tietoisesti välttää opiskeluajan pidentymistä karsimalla lukemastani kaiken turhan pois.	1	2	3	4	5	6	7
48. Yritän yhdistää opiskelussani eri tahoilta tulleita aineksia yhteen.	1	2	3	4	5	6	7
49. Esitän luentojen aikana usein kysymyksiä luennoitsijalle.	1	2	3	4	5	6	7
50. Pyrin opiskelussani säilyttämään oman sisäisen tasapainoni.	1	2	3	4	5	6	7
51. Haluan saada mahdollisimman hyvät arvosanat kaikesta opiskelustani.	1	2	3	4	5	6	7

	-						+
52. Pidän erityisesti arvossa kasvatuksen mahdollisuuksia tasa-arvon lisäämisessä.	1	2	3	4	5	6	7
53. Yksilöllinen työskentely on minulle sopivin opiskelutapa.	1	2	3	4	5	6	7
54. Akateemiset opinnot ovat alkaneet kiinnostaa minua entistä enemmän.	1	2	3	4	5	6	7
55. Pidän arvossa sitä, että saan opiskella omien yksilöllisten taipumusteni mukaan.	1	2	3	4	5	6	7
56. Opiskelu sujuu minulta hyvin myös iltaisin.	1	2	3	4	5	6	7
57. Haluan ajoittaa opiskeluni oman aikatauluni mukaan.	1	2	3	4	5	6	7
58. Olen tullut opiskelemaan tätä aluetta, koska suhtaudun kriittisesti nykyiseen opetus- ja kasvatustapaan.	1	2	3	4	5	6	7
59. Opinnoissa menestyminen on tärkeää, mikäli aikoo saada pysyvän työpaikan pääkaupunkiseudulla.	1	2	3	4	5	6	7
60. Mielestäni jokaisen opiskelijan tulisi saada yksilöllistä, omien edellytystensä mukaista ohjausta.	1	2	3	4	5	6	7
61. Noudatan opiskelussani tarkkaa aikataulua.	1	2	3	4	5	6	7
62. Etsin täällä annettavan opetuksen vastapainoksi toisenlaista kasvatustieteellistä kirjallisuutta.	1	2	3	4	5	6	7
63. Haluan valmistua mahdollisimman nopeasti päästäkseni ansiotyöhön.	1	2	3	4	5	6	7
64. Arvostan opettajan ammatin tarjoamaa sosiaalista asemaa.	1	2	3	4	5	6	7
65. Olen jatkanut opiskeluani täällä pääasiassa ryhmässäni olevan hyvän hengen vuoksi.	1	2	3	4	5	6	7
66. Olen jatkanut opiskeluani täällä pääasiassa siksi, että olen saanut opettajiltani kannustusta ja positiivista palautetta.	1	2	3	4	5	6	7
67. Tarvitsen selvät luentorungot selvitäkseni kuulusteluista.	1	2	3	4	5	6	7
68. Opetus on täällä huomattavan paljon liian teoreettista luonteeltaan.	1	2	3	4	5	6	7
69. Haluan olla parhaimpien joukossa kaikissa opinnoissani.	1	2	3	4	5	6	7
70. Koen opintojen kiireellisen aikataulun haitallisena opiskelussani.	1	2	3	4	5	6	7

MITEN PALJON SEURAAVAT TEKIJÄT OVAT VAIKUTTANEET OMALLA KOHDALLASI SIIHEN, ETTÄ OPISKELET TÄSSÄ OPPILAITOKSESSÄ? ARVIOI NÄMÄ NS. URALLEPYRKIMISMOTIIVIT ASTEIKOLLA 1 (EI LAINKAAN) - 7 (ERITTÄIN PALJON):

	ei lainkaan ---------- erittäin paljon
71. Ammatin sosiaalinen arvostus	1 2 3 4 5 6 7
72. Taloudellinen turvallisuus	1 2 3 4 5 6 7
73. Jatkokoulutusmahdollisuus	1 2 3 4 5 6 7
74. Kasvattajantehtävä, kutsumus	1 2 3 4 5 6 7
75. Harrastusmahdollisuus	1 2 3 4 5 6 7
76. Yhteiskunnallinen vaikutusmahdollisuus	1 2 3 4 5 6 7
77. Aikaisempi työkokemus	1 2 3 4 5 6 7
78. Sukulaisten tai ystävien toivomus	1 2 3 4 5 6 7
79. Sattuma	1 2 3 4 5 6 7

ARVIOI OPINTOKOKEMUKSIASI ASTEIKOLLA 1(heikko,huono) - 7(erinomainen):

	-						+
80. Millainen opintomenestys Sinulla on oman arviosi mukaan ollut?	1	2	3	4	5	6	7
81. Miten tyytyväinen olet ollut opiskeluaikaasi tässä oppilaitoksessa?	1	2	3	4	5	6	7
82. Miten hyvin opetus on valmentanut Sinua tulevaan ammattiisi ja sen vaatimuksiin?	1	2	3	4	5	6	7
83. Miten hyvin annettu koulutus on muokannut Sinua hyväksi kasvattajaksi?	1	2	3	4	5	6	7

SEURAAVASSA PYYDÄMME SINUA ARVIOIMAAN MINKÄLAINEN OLET. ALLA ON LUETELTU JOUKKO TOISILLEEN VASTAKKAISIA SANOJA TAI ILMAISUJA. RENGASTA JOKIN NIIDEN VÄLISSÄ OLEVISTA NUMEROISTA. KESKIMMÄINEN NUMERO 4 TARKOITTAA SITÄ, ETTÄ KUMPIKIN ÄÄRIOMINAISUUKSISTA SOPII SINULLE YHTÄ HYVIN. TOIMI TAASKIN NOPEASTI JA VAIKUTELMANOMAISESTI.

MILLAINEN OLEN									item no.
rauhallinen	1	2	3	4	5	6	7	rauhaton	84
levollinen	1	2	3	4	5	6	7	levoton	85
kärsivällinen	1	2	3	4	5	6	7	kärsimätön	86
harkitsematon	1	2	3	4	5	6	7	harkitseva	87
huolimaton	1	2	3	4	5	6	7	huolellinen	88
epävarma	1	2	3	4	5	6	7	varma	89
mielummin ryhmässä työskentelevä	1	2	3	4	5	6	7	mielummin yksin työskentelevä	90
itsenäinen	1	2	3	4	5	6	7	muiden mielipiteistä riippuvainen	91
kiitoksesta piittamaton	1	2	3	4	5	6	7	kiitosta tarvitseva	92

konservatiivinen	1	2	3	4	5	6	7	vapaamielinen	93
varovainen	1	2	3	4	5	6	7	rohkea ja kokeileva	94
perinteistä kiinni pitävä	1	2	3	4	5	6	7	uusia ideoita kannattava	95
pelokas	1	2	3	4	5	6	7	rohkea	96
ahdistunut	1	2	3	4	5	6	7	tasapainoinen	97
turvallisuutta kaipaava	1	2	3	4	5	6	7	turvallisuutta tunteva	98
asioita erittelevä	1	2	3	4	5	6	7	asiat kokonaisvaltaisesti ottava	99
hienostunut	1	2	3	4	5	6	7	karkea	100
järkiperäinen	1	2	3	4	5	6	7	tunteenomainen	101
bohemi	1	2	3	4	5	6	7	sovinnainen	102
omaperäinen	1	2	3	4	5	6	7	sopeutuva	103
epäkäytännöllinen	1	2	3	4	5	6	7	käytännöllinen	104
idealisti	1	2	3	4	5	6	7	realisti	105
herkkä	1	2	3	4	5	6	7	kovaluontoinen	106
mietiskelevä	1	2	3	4	5	6	7	toiminnallinen	107
ujo	1	2	3	4	5	6	7	sosiaalisesti rohkea	108
riitaa pelkäävä	1	2	3	4	5	6	7	riitaa pelkäämätön	109
vetäytyvä	1	2	3	4	5	6	7	aktiivinen	110
tunnollinen	1	2	3	4	5	6	7	velvoitteista piittaamaton	111
täsmällinen	1	2	3	4	5	6	7	epätäsmällinen	112
pikkutarkka	1	2	3	4	5	6	7	suuripiirteinen	113
iloinen	1	2	3	4	5	6	7	surullinen	114
nopeasti innostuva	1	2	3	4	5	6	7	hitaasti innostuva	115
puhelias	1	2	3	4	5	6	7	hiljainen	116
alistuva	1	2	3	4	5	6	7	hallitseva	117
heikkotahtoinen	1	2	3	4	5	6	7	voimakastahtoinen	118
päättämätön	1	2	3	4	5	6	7	päättäväinen	119
heikko itsetunto	1	2	3	4	5	6	7	vahva itsetunto	120
arvostelua pelkäävä	1	2	3	4	5	6	7	arvostelua hyvin kestävä	121
helposti masentuva	1	2	3	4	5	6	7	optimistinen	122
avoin	1	2	3	4	5	6	7	sulkeutunut	123
lämmin	1	2	3	4	5	6	7	kylmä	124
seurallinen	1	2	3	4	5	6	7	yksinäisyyteen vetäytyvä	125

KIITOKSIA AVUSTASI

HELSINGIN YLIOPISTON
OPETTAJANKOULUTUSLAITOS

Appendix 2.

8.5.1984

Hyvä OKL:n opiskelija

Olen tekemässä tutkimusta opettajaksi valmistuvien opiskelijoiden opiskelutyyleistä. Tutkimuksessa ovat mukana kaikkien vuosikurssien ja eri linjojen opiskelijat Helsingin yliopistosta. Suurin osa tutkimusaineistosta on kerätty luentojen ja harjoitusten yhteydessä. SYYSTÄ TAI TOISESTA EN OLE TAVOITTANUT SINUA. VASTAA YSTÄVÄLLISESTI OHEISEEN KYSELYLOMAKKEESEEN JA PALAUTA SE 15.5. (tiist.) MENNESSÄ PALAUTUSKUORESSA.
Tiedot käsitellään luottamuksellisina - nimeäsi tarvitaan, jotta kaikki vastaajat voitaisiin tavoittaa.

KIITOS AVUSTASI

Arja Puurula

Arja Puurula
vs. ass.

PS. Lomakkeen täyttö vie aikaa n. 15-20 minuuttia.

FACTOR ANALYSIS OF STUDY ORIENTATION ITEMS
PRINCIPAL AXIS MODEL — VARIMAX SOLUTION
Four factors

	I	II	III	IV	V	VI	I	II	III	IV	h^2
1	29	36	00	-13	15	12	44	-06	-14	09	23
2	22	-06	06	-05	14	-09	12	18	03	10	06
3	38	-04	10	-01	-00	06	27	26	09	10	16
4	49	44	11	13	-34	-01	67	-02	11	-02	46
5	32	-44	10	06	-02	-05	-05	51	21	07	31
6	27	-07	-06	02	-05	11	15	24	-01	-04	08
7	-21	29	18	18	-04	-23	06	-39	19	-04	19
8	29	-05	-32	-08	06	-15	15	29	-26	-14	19
9	19	39	16	00	-01	06	42	-19	05	09	22
10	20	-29	05	-10	-34	-36	-05	34	03	13	14
11	17	-45	-01	21	-05	-10	-16	43	23	-13	28
12	35	-36	-25	-06	-12	09	00	54	-14	-09	32
13	34	-21	09	-20	16	03	11	37	-02	23	20
14	49	36	-06	-03	-33	-13	59	07	-11	-01	37
15	20	09	25	08	06	14	23	02	22	12	11
16	06	-28	21	27	08	-11	-11	19	39	-03	20
17	07	07	49	23	21	15	15	-10	50	16	30
18	22	-18	26	-43	20	-06	04	26	-07	52	34
19	40	-38	-18	-15	-09	12	02	59	-14	03	36
20	22	-26	-02	-23	29	-09	-02	35	-11	18	17
21	02	-11	32	35	09	03	-01	01	48	-03	24
22	-06	-25	18	27	-13	-24	-18	09	35	-06	17
23	14	-45	03	12	13	05	-19	41	19	-03	24
24	22	14	-13	06	31	-04	25	07	-07	-13	09
25	39	03	-19	-00	18	-14	29	27	-13	-11	19
26	43	-35	12	12	-03	-20	10	51	25	04	34
27	39	-13	-02	03	-09	17	20	35	05	-01	17
28	28	-14	-22	06	17	13	10	32	-08	-17	15
29	38	-40	-02	-04	13	24	02	55	05	06	31
30	20	20	14	07	06	00	30	-04	12	04	11
31	31	35	28	-01	06	17	49	-10	14	19	30
32	35	-07	04	-15	04	21	21	28	-04	16	15
33	29	27	03	-02	20	-00	39	-01	-04	04	16
34	29	25	-07	-14	17	17	37	03	-18	05	17
35	23	-04	33	-42	10	00	14	15	-04	55	35
36	27	-14	-34	-13	04	-20	07	35	-28	-12	22
37	38	-46	11	-00	05	12	-01	57	18	13	38
38	16	-39	04	-10	-31	-31	-15	38	04	13	19
39	60	43	03	02	-10	10	74	09	-02	01	55
40	04	-32	19	33	06	-17	-15	20	42	-09	25
41	08	-18	50	-48	07	-28	-05	13	06	70	51
42	32	36	-22	04	44	-32	46	-01	-18	-19	28
43	47	-34	-05	-08	01	18	12	57	-00	07	34
44	58	37	06	09	-30	-01	69	11	07	-02	49
45	-05	-19	17	17	-25	08	-14	06	27	00	10
46	41	43	03	-00	-38	-18	59	-04	-05	02	35
47	08	10	14	22	13	-28	15	-01	23	-07	09

48	31	-44	-10	07	09	-01
49	31	-35	09	-06	-15	-10
50	14	-19	-14	01	32	-11
51	58	39	-08	01	-09	-05
52	18	-28	16	-02	14	05
53	12	14	-37	57	03	23
54	43	-18	-22	11	-13	10
55	25	-20	-16	27	16	-00
56	26	-09	-28	13	06	-06
57	07	-24	-04	40	05	-06
58	26	-50	19	22	-07	-10
59	22	15	12	20	-03	-00
60	14	-22	21	23	19	-02
61	41	29	-09	04	19	-03
62	30	-47	-05	-01	-11	12
63	25	41	-12	09	45	-33
64	39	25	03	-09	17	-08
65	11	-05	43	-12	-11	02
66	35	-01	22	-07	-07	13
67	13	27	35	01	15	12
68	-09	19	30	21	17	-19
69	57	44	06	13	-27	-05
70	00	01	50	25	13	20

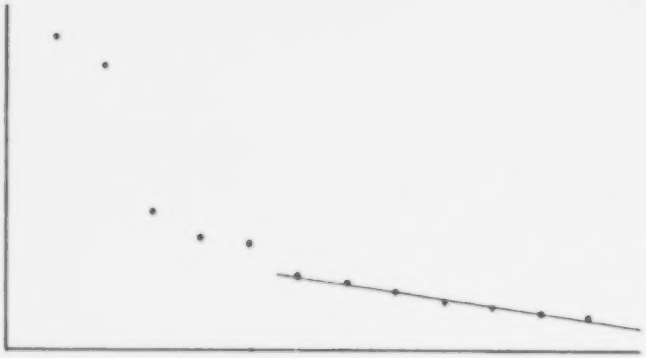
-01	54	07	-08	31	
00	44	10	14	22	
-03	25	-05	-08	07	
68	12	-09	-06	50	
-05	29	16	15	13	
19	01	11	-67	50	
19	45	-03	-20	28	
06	32	12	-28	20	
12	28	-08	-27	17	
-08	20	29	-30	22	
-11	49	38	02	40	
28	01	20	-06	12	
-01	20	35	-00	16	
49	08	-07	-08	26	
-09	54	06	01	31	
46	-11	-09	-16	25	
46	08	-07	09	23	
07	04	23	39	21	
27	21	13	21	18	
30	-17	21	22	21	
09	-26	32	04	18	
73	04	07	-05	54	
06	-11	52	16	31	

	6.1	5.9	2.7	2.6	17.5
&	9.1	8.3	4.1	3.4	25

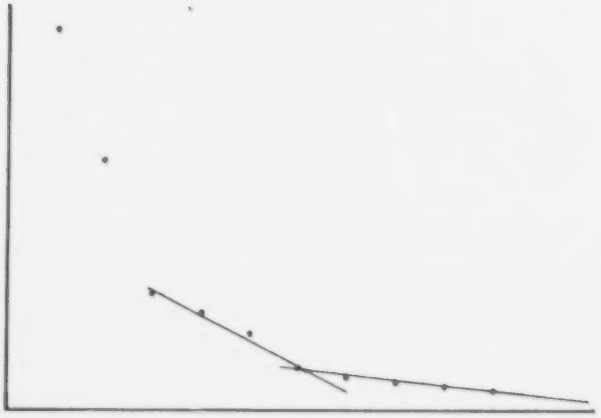
VARIMAX SOLUTION OF STUDY ORIENTATIONS, 6 FACTORS

	I	II	III	IV	V	VI	h^2
1	30	04	15	05	26	-28	27
2	06	13	03	15	19	09	09
3	24	27	10	-10	08	06	16
4	76	-00	05	-05	-02	-01	58
5	00	42	-02	14	-02	35	31
6	14	27	-01	-05	03	01	10
7	10	-46	07	-03	-02	13	25
8	09	20	-29	-03	29	-01	22
9	37	-12	21	03	08	-15	22
10	15	14	-38	26	-15	34	39
11	-09	31	-09	-05	-04	42	29
12	04	53	-24	-04	-00	06	34
13	03	36	05	27	16	03	26
14	68	04	-19	02	06	-05	50
15	19	09	30	06	02	03	14
16	-09	09	15	02	01	43	22
17	08	-04	57	08	01	17	37
18	-04	22	07	56	14	-04	38
19	04	58	-20	07	-00	04	39
20	-15	-28	-05	27	29	04	26
21	-01	-01	36	-06	-05	34	25
22	-04	-06	-02	-00	-15	46	24
23	-21	36	06	01	02	28	26
24	07	06	07	-08	41	-04	19
25	17	20	-11	-01	39	04	24
26	15	35	-05	15	09	45	38
27	21	39	03	-03	-01	04	20
28	-01	35	-00	-14	23	-01	19
29	-05	60	10	06	07	07	38
30	25	-03	18	02	13	01	11
31	41	01	36	11	10	-14	33
32	15	36	11	12	16	-11	20
33	25	01	14	05	32	-11	20
34	22	14	11	02	26	-29	23
35	09	16	13	54	05	-10	35
36	03	24	-36	02	27	03	26
37	-02	55	09	15	01	24	39
38	05	16	-39	26	-16	38	42
39	69	16	12	-02	19	-16	57
40	-10	07	11	-03	-01	50	28
41	-04	-01	04	76	-01	12	60
42	21	-12	-05	-04	72	-02	58
43	09	59	-00	09	06	06	38
44	75	11	01	-03	05	-00	58
45	01	06	07	-05	-34	21	17
46	70	-09	-16	04	00	-03	53
47	12	-19	09	01	21	28	18

48	-09	46	-08	01	12	27	32
49	09	34	-13	20	-07	27	26
50	-17	18	-04	02	34	11	19
51	-17	12	-03	-03	27	-10	51
52	-09	28	14	16	05	16	16
53	13	10	09	-70	14	05	55
54	22	45	-14	-17	05	10	31
55	-01	28	02	-21	22	23	22
56	08	23	-16	-18	23	10	18
57	-06	12	05	-25	05	38	23
58	-01	35	03	09	-09	52	41
59	28	01	15	-07	06	11	12
60	-06	15	25	02	10	32	20
61	34	08	08	-04	40	-09	30
62	-03	53	-09	04	-11	19	33
63	22	-23	03	-03	68	01	57
64	33	06	07	13	35	-08	27
65	14	04	21	34	-19	09	23
66	27	25	16	17	-04	02	20
67	21	-09	40	15	08	-07	25
68	05	-33	26	05	13	21	24
69	78	04	03	-05	09	-00	62
70	03	-03	57	05	-10	18	37
	5.22	5.03	2.46	2.6	3.0	3.1	21.3
	7.0%	7.0%	3.5%	3.7%	4.2%	4.4%	30.5%



Scree-test of the study orientation test



Scree-test of the personality test

Appendix 6.

THE RELIABILITIES OF STUDY ORIENTATIONS SCALES IN SUBGROUPS

TEACHER EDUCATION

STUDY PROGRAMME

		Prag.	Inter.	Achiev.	Reform.
1. Nursery school	1st year	.73	.74	.70	.73
2. Nursery school	2nd year	.74	.70	.73	.82
3. Class teacher	1st year	.81	.71	.80	.71
4. Class teacher	2nd year	.76	.69	.83	.75
5. Class teacher	3rd year	.82	.69	.77	.76
6. Class teacher	4th year	.54	.73	.80	.76
7. Subject teacher		.70	.76	.84	.72
8. Home economics	1st year	.77	.80	.85	.62
9. Home economics	2nd year	.50	.70	.66	.68
10. Home economics	3rd year	.77	.74	.73	.73
11. Home economics	4th year	.67	.50	.81	.32
12. Textile handic.	1st year	.74	.75	.65	.68
13. Textile handic.	2nd year	.72	.73	.76	.73
14. Textile handic.	3rd year	.68	.86	.75	.76
15. Textile handic.	4th year	.81	.78	.88	.79

FACTOR ANALYSIS OF PERSONALITY ITEMS
PRINCIPAL AXES MODEL
(decimal points omitted)

	I	II	III	IV	V	h^2
84	-12	-60	-27	45	-06	66
85	-06	-61	-23	46	-03	64
86	04	-52	-19	39	-11	47
87	-08	51	05	04	21	32
88	-02	65	-07	14	34	57
89	-72	17	15	11	04	58
90	16	09	22	10	16	12
91	54	-03	-27	02	-12	38
92	16	-04	-33	08	17	17
93	-28	-46	12	-29	23	44
94	-57	-38	04	-17	25	56
95	-39	-38	09	-30	23	44
96	-73	-00	09	-01	02	54
97	-50	40	01	-25	-24	52
98	-47	30	05	-23	-22	41
99	-20	-01	-01	-09	-25	11
100	-08	-27	08	20	-15	15
101	12	-31	-38	-20	08	30
102	14	59	-24	13	-23	50
103	27	45	-25	08	-40	51
104	-16	53	-10	19	07	36
105	-06	48	03	25	-17	33
106	-22	05	34	37	-34	42
107	-32	21	-16	27	-25	31
108	-70	-11	-10	19	-06	55
109	-52	-11	21	10	02	33
110	-69	-13	-22	05	-01	54
111	-02	-63	21	-10	-30	54
112	03	-62	16	-19	-33	55
113	-16	-49	16	-26	-29	45
114	54	-19	34	12	11	48
115	49	17	37	-01	-10	42
116	63	17	37	-16	-16	59
117	-60	-15	26	36	16	61
118	-62	-05	27	28	26	60
119	-59	21	15	20	18	48
120	-72	19	22	-05	-12	62
121	-55	24	28	-17	-15	49
122	-57	25	11	-22	-26	52
123	56	-00	49	09	00	56
124	34	-09	43	39	-17	49
125	53	01	50	14	09	56
	7.9	5.1	2.4	2.1	1.6	

VARIMAX SOLUTION

	I	II	III	IV	V	h^2
84	03	23	20	75	-05	66
85	02	23	13	75	-06	64
86	-06	19	06	64	01	47
87	15	-43	-03	-26	11	32
88	08	-63	00	-22	15	57
89	70	-09	28	-09	-01	58
90	03	-07	-29	-02	-03	12
91	-56	-11	-12	14	19	38
92	-28	-11	14	18	-04	17
93	16	58	18	-04	-58	44
94	39	45	37	02	-53	55
95	22	51	26	-08	-57	44
96	62	10	37	-08	-13	54
97	36	-18	33	-44	20	52
98	35	-08	28	-39	14	41
99	13	06	15	-08	11	11
100	14	17	-05	28	04	15
101	-38	23	28	12	-24	30
102	-14	-63	04	-14	57	50
103	-28	-51	-01	-10	62	51
104	18	-55	09	-12	30	36
105	19	-51	-08	-07	47	33
106	47	-10	-22	16	36	42
107	27	-31	24	13	38	31
108	55	55	04	46	-02	55
109	54	16	13	05	-13	33
110	44	09	57	12	-11	54
111	04	64	-09	20	-18	54
112	-06	65	-06	14	-18	55
113	09	59	06	01	-20	45
114	-23	15	-60	14	-09	48
115	-19	-08	-58	-17	18	42
116	-34	-02	-63	-28	04	59
117	71	09	08	25	-15	61
118	71	05	10	13	-21	60
119	62	-17	18	-03	-03	48
120	69	-01	26	-25	03	62
121	55	01	14	-38	04	49
122	47	-03	30	-37	12	52
123	-16	05	-73	-03	05	56
124	07	-01	-62	26	24	49
125	-11	02	-74	00	02	56
	5.7	3.2	4.4	3.0	2.8	19.2
	13%	7%	10%	6%	6%	42%

STUDY ORIENTATION

PRINCIPAL AXIS SOLUTION
(decimal points omitted)

OBLIQUE ROTATION; 6 FACTORS
FACTOR PATTERN;

	I	II	III	IV	V	VI	I	II	III	IV	V	VI	h^2	I	II	III	IV	V	VI
1	32	-32	01	-15	14	-14	23	-31	15	-04	21	-09	26	32	-30	18	-06	29	-07
2	19	09	05	-08	13	07	01	07	03	-14	18	-07	07	06	09	05	-15	19	-14
3	37	06	12	-02	01	-05	22	06	10	-11	07	-20	16	26	10	13	-16	15	-25
4	54	-39	12	18	-32	02	78	02	02	07	-08	02	58	76	-04	11	02	07	-02
5	25	44	09	05	-04	07	02	36	-03	-14	-00	-26	27	01	42	-04	-20	04	-37
6	26	09	-08	04	-05	-11	14	01	-02	07	01	-27	10	16	06	-03	02	09	-27
7	-17	-29	17	19	01	21	11	10	09	05	-01	45	22	07	-01	15	10	-07	44
8	27	07	-32	-08	04	15	09	03	-30	02	29	-11	21	11	03	-28	02	31	-20
9	22	-40	16	-02	00	-06	34	-20	19	-03	05	10	24	38	-24	24	-04	11	12
10	16	30	04	-03	-28	25	16	33	-29	-21	-11	-04	26	10	33	-26	-22	-09	-16
11	13	45	-00	22	-02	12	-04	46	-07	04	-00	-18	29	-07	50	-08	-01	01	-28
12	32	38	-24	-04	-13	-07	07	11	-24	03	01	-46	32	06	21	-27	-03	09	-50
13	32	24	10	-22	12	-02	00	04	04	-28	16	-28	24	07	12	04	-32	22	-36
14	53	-30	-04	02	-29	13	67	-00	-19	-02	04	01	47	66	-06	-10	-05	16	-07
15	20	-08	24	06	08	-11	16	00	29	-05	01	-07	13	20	02	30	-08	07	-06
16	03	28	22	25	13	10	-08	41	18	-01	03	01	21	-09	42	19	-04	01	-07
17	06	-08	48	19	25	-15	02	10	57	-05	-02	04	36	08	11	59	-09	01	07
18	20	23	26	-45	14	05	-11	-04	05	-55	15	-16	38	-03	03	07	-57	16	-25
19	34	40	-16	-13	-13	-08	06	09	-21	-09	00	-48	34	07	20	-23	-15	09	-54
20	18	29	-02	-27	24	04	-21	03	-03	-27	28	-22	25	-12	10	-05	-28	28	-31
21	01	09	32	32	16	-05	-02	29	39	08	-04	03	24	-00	29	39	04	-03	02
22	-08	24	17	31	-07	26	00	50	-00	01	-10	19	26	-07	46	02	01	-14	09
23	07	46	03	10	14	-07	-22	27	09	-00	03	-30	25	-20	36	04	-05	04	-34
24	22	-10	-14	-00	32	01	-01	-06	07	08	39	-05	18	08	-06	08	08	41	-09
25	37	00	-20	-04	20	12	12	04	-10	01	41	-10	23	19	04	-07	-00	44	-21
26	38	39	11	14	-01	22	16	50	-06	-14	12	-15	38	16	52	-02	-19	16	-33
27	37	15	-01	05	-06	-14	21	06	04	03	-01	-35	19	23	13	03	-04	10	-37
28	25	17	-22	01	18	-15	-06	-02	01	13	22	-35	20	00	05	-03	09	28	-36
29	33	43	-02	-06	11	-26	-09	07	11	-04	05	-58	38	-02	21	05	-13	15	-60
30	22	-17	13	07	08	02	22	02	16	-02	12	05	11	26	-01	20	-03	16	02
31	34	-31	28	-02	07	-17	34	-18	35	-09	04	-05	33	42	-18	39	-13	15	-03
32	34	11	05	-14	03	-21	11	-10	11	-11	04	-38	20	17	-02	09	-17	14	-38
33	30	-24	01	-06	20	-00	19	-13	12	-03	29	00	19	27	-15	16	-04	34	-02
34	32	-21	-06	-16	15	-17	16	-29	11	-02	22	-18	27	25	-26	12	-05	30	-17
35	22	08	32	-42	02	01	04	-11	09	-53	04	-11	34	11	-06	12	-55	07	-17
36	25	14	-33	-13	03	19	04	06	-36	-03	30	-12	25	06	07	-34	-02	30	-23
37	32	49	12	-01	04	-13	-04	24	11	-14	-01	-47	38	00	37	07	-23	07	-53
38	10	37	01	-04	-25	26	07	35	-31	-21	-10	-05	28	00	36	-29	-22	-10	-18
39	65	-37	03	02	-10	-10	66	-16	09	03	12	-17	58	72	-17	16	-03	30	-19
40	01	31	19	34	11	15	-08	50	15	06	01	04	28	-10	50	16	03	-01	-05
41	05	21	51	-46	-00	30	-06	13	00	-78	02	15	61	-04	15	07	-76	-03	01
42	33	-30	-22	-03	45	33	12	00	-07	02	73	25	56	23	-08	01	06	70	10
43	44	38	-02	-08	-03	-16	10	10	-01	-10	03	-53	37	14	22	-03	-19	15	-59
44	62	-30	08	14	-28	02	76	04	-01	04	-02	-08	58	75	-00	07	-02	15	-14
45	-06	17	17	22	-21	-08	06	21	09	07	-33	-08	16	-01	23	07	03	-30	-05

46	45	-38	03	05	-33	18
47	08	-09	13	19	16	30
48	26	47	-10	06	08	01
49	27	37	10	-02	-15	12
50	10	20	-14	-06	31	07
51	61	-32	-07	01	-09	04
52	14	28	13	-06	14	-07
53	13	-15	-37	54	12	-25
54	42	21	-22	14	-10	-09
55	22	21	-17	26	21	-04
56	27	11	-29	12	10	05
57	05	23	-04	40	12	04
58	20	49	19	21	-04	13
59	23	-13	11	17	00	-01
60	11	22	20	20	23	-02
61	42	-24	-09	00	21	04
62	24	47	-03	01	-12	-08
63	27	-36	-12	01	43	35
64	41	-20	02	-13	16	08
65	09	05	40	-08	-12	01
66	33	04	21	-04	-08	-10
67	15	-24	35	-03	16	-12
68	-08	-19	29	17	22	16
69	63	-38	07	17	-25	06
70	-02	-03	49	20	18	-22

Eigenvalues

6.9 6.2 3.5 3.0 2.8 2.1

% of var

9.8 8.8 5.0 4.3 4.0 3.1

cum %

9.8 18.7 23.7 28 31.9 35

71	01	-17	-03	-01	14	49
11	30	07	-02	22	31	18
-09	29	-07	-01	12	-36	31
12	31	-13	-21	-05	-21	26
-22	08	-02	-02	34	-11	18
60	-08	-06	03	21	-09	48
-12	11	14	-15	06	-23	14
14	03	13	72	10	-18	55
24	15	-13	18	05	-40	31
-03	22	06	25	22	-23	24
07	12	-14	19	25	-18	19
-05	38	10	27	07	-06	23
02	54	03	-10	-06	-17	38
27	09	15	07	03	01	12
-09	28	29	00	10	-10	20
27	-09	06	05	39	-03	29
00	23	-09	-06	-10	-42	29
13	02	-00	00	67	35	52
26	-09	05	-14	34	-01	26
14	09	17	-30	-18	01	19
25	03	14	-15	-06	-20	17
14	-12	40	-14	04	05	25
00	15	28	-04	13	35	23
80	04	-00	07	03	-00	64
-02	08	58	-03	-14	-01	36

Eigenvalues

6.3 5.5 2.8 2.3 2.1 1.5 20.5

% of var

30.4 26.9 13.6 11.4 10.4 7.2

67	-08	-06	-04	09	06	
12	21	14	00	18	19	
-06	38	-10	-06	17	-45	
10	36	-10	-26	-00	-32	
-15	12	-03	-03	32	-19	
65	-12	02	-01	34	-16	
-07	19	12	-19	08	-27	
14	02	09	67	17	-10	
24	21	-14	11	17	-45	
00	26	04	21	26	-28	
10	13	-14	17	29	-24	
-06	38	08	24	07	-11	
-01	58	04	-15	-03	-30	
28	07	18	04	09	-01	
-05	32	28	-04	11	-14	
36	-10	11	03	45	-09	
-01	33	-13	-12	-03	-47	
24	-09	09	05	63	20	
35	-10	11	-15	39	-09	
13	10	20	-33	-16	-01	
28	07	16	-21	04	-22	
21	-13	43	-17	09	08	
03	08	33	-02	07	31	
80	-03	10	02	19	-07	
02	11	57	-07	-11	05	

DISTRIBUTIONS AND CHI -TESTS OF CAREER CHOICE MOTIVES AND STUDY EXPERIENCES ACCORDING TO STUDY PROGRAMS

71 Good social status of a teacher

	1	2	3	4	5	6	7
NURSERY	12.4	22.6	21.7	23.5	13.3	5.8	0.9
ELEMENTARY	17.3	24.7	18.1	19.3	17.7	2.9	0.0
SUBJECT	14.3	23.4	18.2	18.2	20.8	5.2	0.0
HOME EC.	13.6	14.8	15.9	11.4	35.2	5.7	3.4
TEXTILE H.	27.1	17.7	20.0	15.3	16.5	2.4	1.2
all	16.1	21.8	19.2	19.1	18.6	4.3	0.8

CHI^2 = 50.2 DF=24 p< .01

72 Security in making a living

NURSERY	16.3	20.7	22.5	21.2	15.4	3.1	0.9
ELEMENTARY	9.4	18.0	16.8	27.9	21.7	4.9	1.2
SUBJECT	3.9	11.7	12.9	20.8	35.1	15.6	0.0
HOME EC.	3.4	9.1	14.8	15.9	36.4	15.9	4.6
TEXTILE H.	9.5	14.3	20.2	21.4	26.2	7.1	1.1
all	10.3	16.7	18.3	22.8	23.5	7.1	1.4

CHI^2 =81.39 DF= 24 p<.001

73 Possibility of further education

NURSERY	5.7	9.7	19.4	15.9	22.5	22.0	4.9
ELEMENTARY	9.0	15.6	10.3	11.9	26.6	21.7	4.9
SUBJECT	9.1	15.6	18.2	27.3	18.2	10.4	1.3
HOME EC.	4.6	7.8	14.8	19.3	21.6	19.3	12.5
TEXTILE H.	5.9	11.8	15.3	15.3	15.3	25.9	10.6
all	7.1	12.3	15.1	16.1	22.5	20.8	6.1

CHI^2 =47.7 DF= 24 p<.01

74 Vocation

NURSERY	2.6	2.2	4.9	4.9	21.6	32.6	31.3
ELEMENTARY	3.3	6.6	5.8	11.5	18.1	32.5	22.2
SUBJECT	3.9	10.4	10.4	16.9	32.5	16.9	9.1
HOME EC.	8.1	6.9	11.5	20.7	21.8	23.0	8.1
TEXTILE H.	16.7	17.9	13.1	19.1	16.7	6.0	10.7
all	5.3	7.0	7.5	12.0	21.0	26.6	20.6

CHI^2 =137.4 DF= 24 p<.001

75 **Possibility for good hobbies**

NURSERY	4.0	5.8	9.3	22.1	23.0	27.4	8.4
ELEMENTARY	2.9	1.2	7.8	8.6	20.9	35.3	23.4
SUBJECT	5.2	5.2	10.4	26.0	26.0	22.1	5.2
HOME EC.	4.6	2.3	11.4	15.9	26.1	30.7	9.1
TEXTILE H.	2.4	2.4	4.7	7.1	17.7	23.5	42.4
all	3.6	3.3	8.6	15.4	22.4	29.4	17.2

CHI^2 = 100.6 DF= 24 p<.001

76 **Possibility of influencing**

NURSERY	5.3	8.4	14.5	15.0	23.8	27.8	5.3
ELEMENTARY	7.8	9.4	15.6	18.4	20.9	22.1	5.7
SUBJECT	6.5	12.0	23.4	24.7	18.2	10.4	5.2
HOME EC.	10.2	11.4	20.5	15.9	28.4	10.2	3.4
TEXTILE H.	18.8	18.8	15.3	17.7	16.5	9.4	3.5
all	8.5	10.7	16.6	17.6	21.9	19.7	5.0

CHI^2 = 53.3 DF= 24 p<.001

77 **Previous working experience**

NURSERY	3.1	7.5	3.1	8.8	18.5	34.3	24.7
ELEMENTARY	22.2	13.2	7.0	8.6	15.6	19.3	14.0
SUBJECT	33.8	16.9	18.2	6.5	11.7	13.0	0.0
HOME EC.	14.8	17.1	9.1	9.1	22.7	18.2	9.1
TEXTILE H.	32.9	10.6	8.2	7.1	14.1	10.6	16.5
all	17.8	11.9	7.4	8.3	16.8	22.2	15.6

CHI^2 = 135.1 DF= 24 p<.001

78 **Influence caused by family or friends**

NURSERY	62.1	18.5	7.5	6.2	5.3	0.0	0.4
ELEMENTARY	56.2	18.4	9.0	4.5	7.4	3.3	1.2
SUBJECT	57.1	18.1	11.7	7.8	1.3	3.9	0.0
HOME EC.	55.7	17.1	12.5	6.8	6.8	1.1	0.0
TEXTILE H.	59.5	20.2	6.0	8.3	4.8	1.2	0.0
all	58.5	18.5	8.9	6.1	5.7	1.8	0.6

CHI^2 = 23.5 DF= 24 ns.

79 **Coincidence**

NURSERY	55.5	11.0	4.9	9.7	7.1	5.3	6.6
ELEMENTARY	34.0	6.2	4.5	12.7	14.8	12.3	15.6
SUBJECT	37.7	11.7	6.5	10.4	14.3	14.3	5.2
HOME EC.	30.7	11.4	4.6	10.2	15.9	9.1	18.1
TEXTILE H.	26.2	13.1	6.0	8.3	10.7	10.7	25.0
all	39.9	9.7	5.0	10.7	11.9	9.7	13.1

CHI^2 = 68.1 DF= 24 p< .001

80 Success in studies

NURSERY	1.3	0.4	6.6	32.2	43.2	15.0	1.3
ELEMENTARY	2.1	2.9	8.6	27.5	43.4	14.3	1.2
SUBJECT	0.0	0.0	11.7	33.8	36.4	18.2	0.0
HOME EC.	1.1	1.1	6.8	44.3	31.8	14.8	0.0
TEXTILE H.	0.0	4.7	5.9	34.1	41.2	14.1	0.0
all	1.3	1.8	7.8	32.5	40.9	15.0	0.8

CHI^2 = 27.86 DF= 24 n.s.

81 Satisfaction over one's study time

NURSERY	0.4	3.5	11.0	21.6	25.6	26.4	11.5
ELEMENTARY	2.1	11.9	12.7	17.6	29.1	23.8	2.9
SUBJECT	1.3	11.7	14.3	31.2	28.6	13.0	0.0
HOME EC.	0.0	18.2	26.1	15.9	28.4	10.2	1.1
TEXTILE H.	1.2	21.2	15.3	12.9	29.4	15.3	4.7
all	1.1	11.1	14.3	19.6	27.9	20.8	5.3

CHI^2 = 86.6 DF= 24

82 Relevance of the studies

NURSERY	0.0	0.4	11.9	19.4	41.9	23.4	3.1
ELEMENTARY	3.3	14.3	26.2	23.4	24.2	8.2	0.4
SUBJECT	1.3	5.2	20.8	40.3	27.3	3.9	1.3
HOME EC.	0.0	4.6	27.3	28.4	31.8	6.8	1.1
TEXTILE H.	1.2	9.4	18.8	25.9	29.4	15.3	0.0
all	1.4	7.2	20.4	24.8	31.6	13.2	1.4

CHI^2 = 119.7 DF= 24 p<.001

83 Relevance of the studies to the good teacher image

NURSERY	0.4	1.8	10.1	22.9	44.1	18.5	2.2
ELEMENTARY	6.2	18.0	22.5	28.9	19.3	4.9	0.4
SUBJECT	1.3	22.1	22.1	28.6	20.8	3.9	1.3
HOME EC.	5.7	12.5	30.7	22.7	25.0	2.3	1.1
TEXTILE H.	3.5	20.0	23.5	25.9	24.7	2.4	0.0
all	3.5	12.9	19.7	25.8	28.6	8.5	1.1

CHI^2 = 142.1 DF= 24 p<.001

MEANS AND DEVIATIONS OF PERSONALITY TRAITS

EGO STRENGTH VS. EGO-WEAKNESS

study year
study program

		1	2	3	4
NURSERY SCHOOL TEACHER STUDENTS	X	48.7	49.0		
	s	8.3	8.2		
	N	108	115		
ELEMENTARY SCHOOL TEACHER STUDENTS	X	50.6	50.2	48.6	51.0
	s	9.0	9.5	10.0	8.9
	N	67	61	62	49
SUBJECT TEACHER STUDENTS	X	45.8			
	s	8.9			
	N	75			
HOME ECONOMICS TEACHER STUDENTS	X	46.0	44.4	48.7	48.1
	s	8.0	9.3	7.7	8.8
	N	24	18	22	23
TEXTILE HANDICRAFT TEACHER STUDENTS	X	47.2	51.5	45.3	47.7
	s	9.9	10.4	10.4	9.2
	N	22	19	19	21

UNCONCERN FOR OBLIGATIONS VS. SENSE OF DUTY

NURSERY SCHOOL TEACHER STUDENTS	X	19.6	19.3		
	s	6.4	6.1		
	N	109	116		
ELEMENTARY SCHOOL TEACHER STUDENTS	X	19.1	20.0	18.7	19.5
	s	6.5	6.3	5.9	7.0
	N	69	61	62	49
SUBJECT TEACHER STUDENTS	X	19.3			
	s	5.9			
	N	73			
HOME ECONOMICS TEACHER STUDENTS	X	17.4	19.5	17.1	18.7
	s	6.1	5.6	4.8	4.9
	N	24	19	21	22
TEXTILE HANDICRAFT TEACHER STUDENTS	X	19.1	17.1	19.8	16.1
	s	6.4	5.6	5.3	6.4
	N	23	20	20	22

INTROVERSION VS. EXTRAVERSION

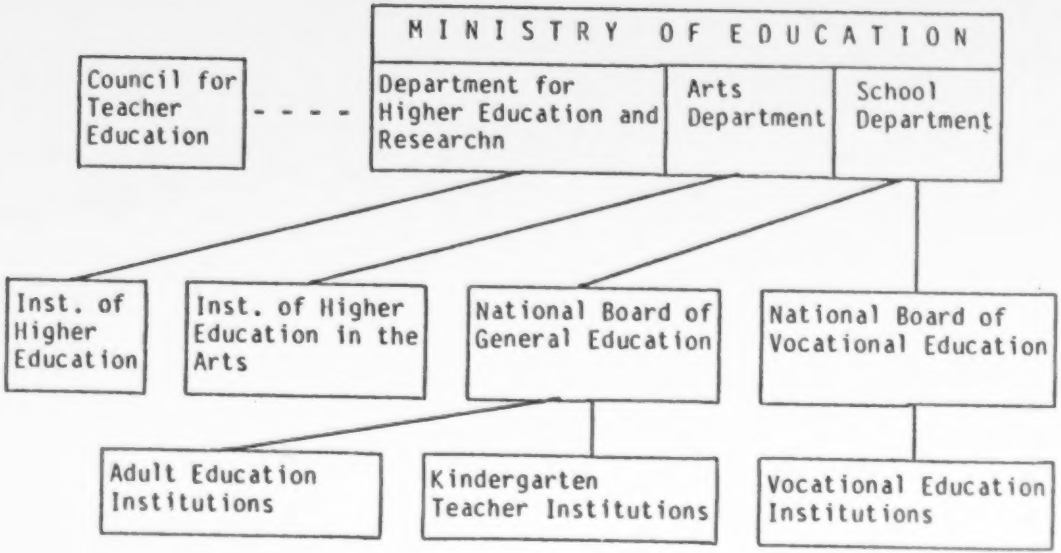
NURSERY SCHOOL TEACHER STUDENTS	X	22.2	21.9		
	σ	6.3	5.9		
	N	110	116		
ELEMENTARY SCHOOL TEACHER STUDENTS	X	21.8	22.2	22.1	22.9
	σ	6.7	6.7	7.0	7.0
	N	68	62	62	49
SUBJECT TEACHER STUDENTS	X	26.7			
	σ	7.7			
	N	74			
HOME ECONOMICS TEACHER STUDENTS	X	24.3	25.8	24.7	25.6
	σ	5.8	7.2	6.5	7.1
	N	24	19	21	23
TEXTILE HANDICRAFTS TEACHER STUDENTS	X	28.2	21.8	24.5	24.6
	σ	7.9	7.2	7.8	7.8
	N	23	20	20	22

BALANCE VS. ANXIETY

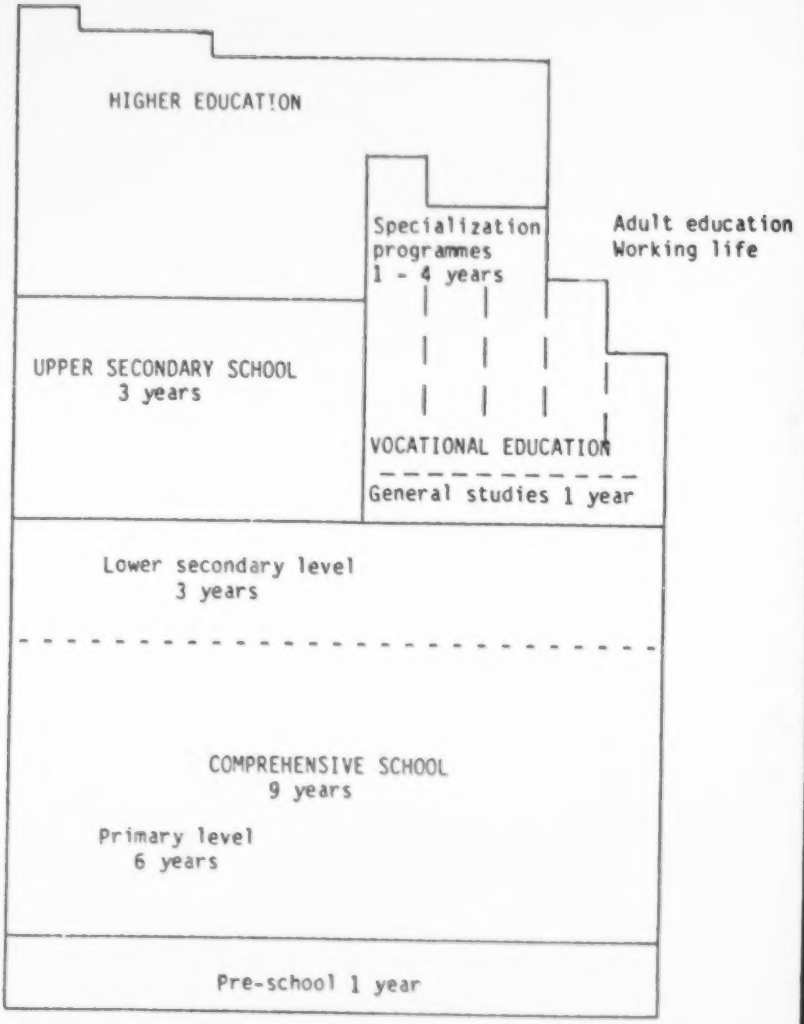
NURSERY SCHOOL TEACHER STUDENTS	X	30.6	30.8		
	σ	5.1	5.3		
	N	108	114		
ELEMENTARY SCHOOL TEACHER STUDENTS	X	31.0	30.4	30.3	31.1
	σ	5.1	6.0	5.9	5.8
	N	68	62	62	50
SUBJECT TEACHER STUDENTS	X	29.1			
	σ	5.6			
	N	74			
HOME ECONOMICS TEACHER STUDENTS	X	28.9	27.1	29.3	27.0
	σ	6.9	5.1	4.5	6.3
	N	24	19	21	23
TEXTILE HANDICRAFT TEACHER STUDENTS	X	27.9	31.3	28.4	31.2
	σ	6.9	6.1	5.9	5.3
	N	22	20	20	22

CONVENTIONALITY VS. ORIGINALITY

NURSERY SCHOOL TEACHER STUDENTS	X	29.1	28.6		
	s	6.4	5.9		
	N	109	116		
ELEMENTARY SCHOOL TEACHER STUDENTS	X	31.1	29.4	30.3	29.3
	s	6.3	6.2	6.6	8.3
	N	69	62	62	49
SUBJECT TEACHER STUDENTS	X	30.5			
	s	6.4			
	N	75			
HOME ECONOMICS TEACHER STUDENTS	X	33.3	33.8	34.5	32.7
	s	7.1	4.9	5.2	6.5
	N	24	19	22	23
TEXTILE HANDICRAFTS TEACHER STUDENTS	X	29.8	30.6	29.2	30.0
	s	6.9	6.4	6.1	6.3
	N	23	20	20	22


MINISTRY OF EDUCATION
Council for Teacher Education
Department for Higher Education and Researchn
Arts Department
School Department
Inst. of Higher Education
Inst. of Higher Education in the Arts
National Board of General Education
National Board of Vocational Education
Adult Education Institutions
Kindergarten Teacher Institutions
Vocational Education Institutions

APPENDIX 11


HIGHER EDUCATION
Specialization programmes 1 - 4 years
Adult education Working life
UPPER SECONDARY SCHOOL 3 years
VOCATIONAL EDUCATION
General studies 1 year
Lower secondary level 3 years
COMPREHENSIVE SCHOOL 9 years
Primary level 6 years
Pre-school 1 year

Research Report, Department of Teacher Education, University of Helsinki

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